CONTRACT SERIAL NO.
23440-8-9176-01-SS
Appendix 3
Part III

CONTRACTOR: LAVAL UNIVERSITY

[redacted]

DÉPARTEMENT DE GÉNIE CHIMIQUE

UNIVERSITÉ LAVAL

QUÉBEC, QUÉ., CANADA, G1K 7P4

QUANTITATION OF XPS INTENSITY RATIOS FOR SUPPORTED CATALYSTS

91-06113/

Final Report

A. SAYARI AND S. KALIAGUINE

Project conducted for the
Canada Centre for Mineral and
Energy Technology
Energy, Mines and Resources Canada

File No. (DSS): 064SS-23440-8-9176
Project No. (CANMET) 23440-8-9176

CANMET Scientific Authority: Dr. James R. Brown

Department of Chemical Engineering
Université Laval

175 pp

November 1990

MICROMEDIA

QUANTITATION OF XPS INTENSITY RATIOS

FOR SUPPORTED CATALYSTS

A P P E N D I X 3

P A R T III

X P S S P E C T R A

ZEOLITE-SUPPORTED PLATINUM CATALYSTS

CONTENTS

Sample	Identification	Pretreatment	Spectra No.
140A	1.85% Pt/HZSM-5(A)[a]	calcined	ASA 1 (survey)
			ASA 1A
		reduced	ASA 22 (survey)
			ASA 12
		red.grnd[b]	ASA 21 (survey)
			ASA 11
140B	2.53% Pt/HZSM-5(B)[a]	calcined	ASA 28
		reduced	ASA 27
		red.grnd[b]	ASA 19
185A	1.85% Pt/Al_2O_3	calc.grnd[c]	ASA 41
		reduced	ASA 52
		red.grnd[b]	ASA 53
185B	0.96% Pt/Al_2O_3	calcined	ASA 42
		calc.grnd[c]	ASA 43
		reduced	ASA 54
		red.grnd[b]	ASA 55
186A	2.97% Pt/SiO_2	calcined	ASA 38
		calc.grnd[c]	ASA 39
		reduced	ASA 46
		red.grnd[b]	ASA 47
186B	1.10% Pt/SiO_2	calcined	ASA 44
		calc.grnd[c]	ASA 45
		reduced	ASA 49
		red.grnd[b]	ASA 48

(a) prepared by ion-exchange, (b) reduced, then ground, (c) calcined, then ground.

Pt/HZSM-5(A)

Sample No. 140A (1.85% Pt)

Prepared by ion-exchange

Pt/HZSM-5(A)

Sample No. 140A (1.85% Pt)

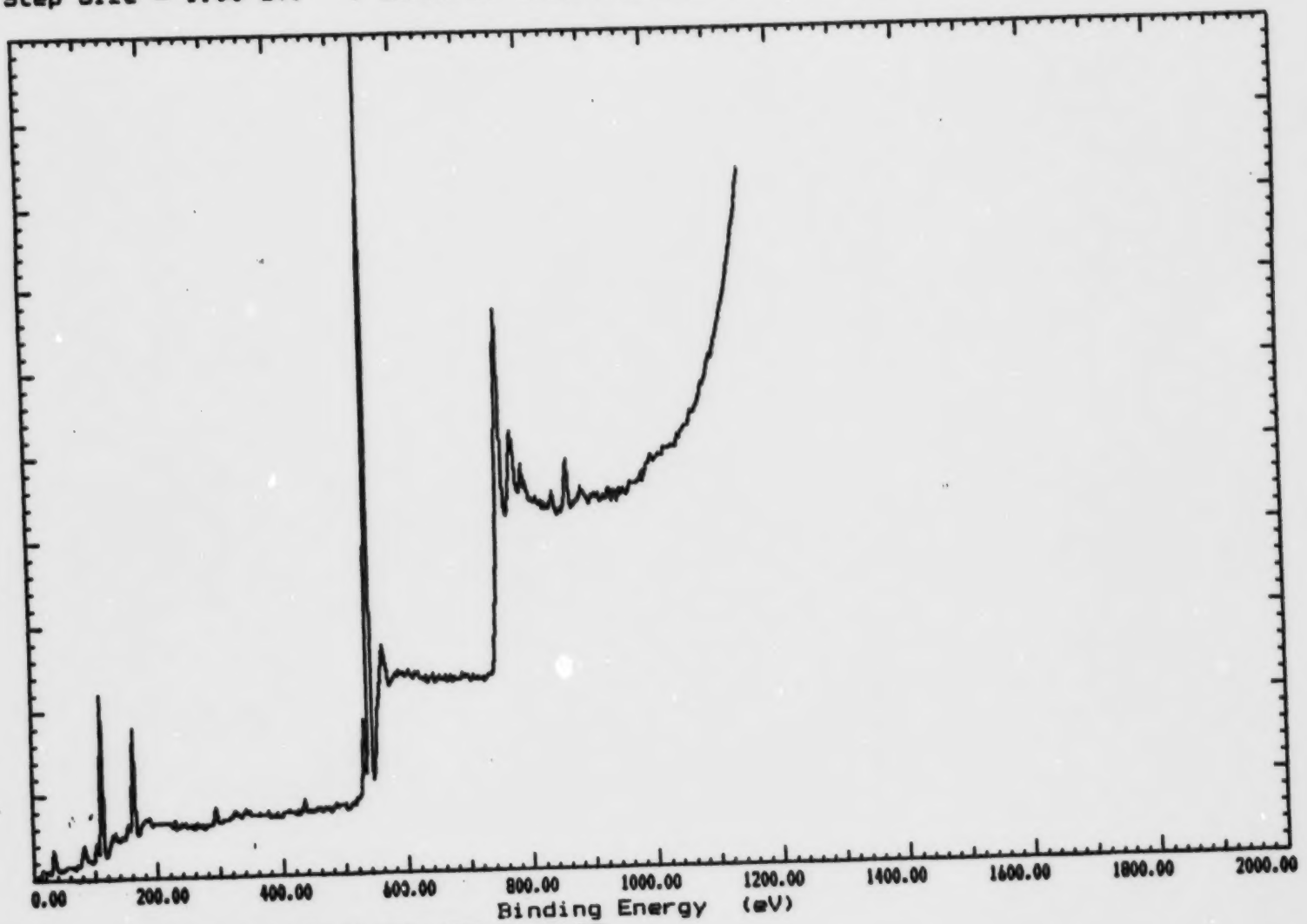
CALCINED

Prepared by ion-exchange

ASA1 Region 1 SURVEY

VG SCIENTIFIC

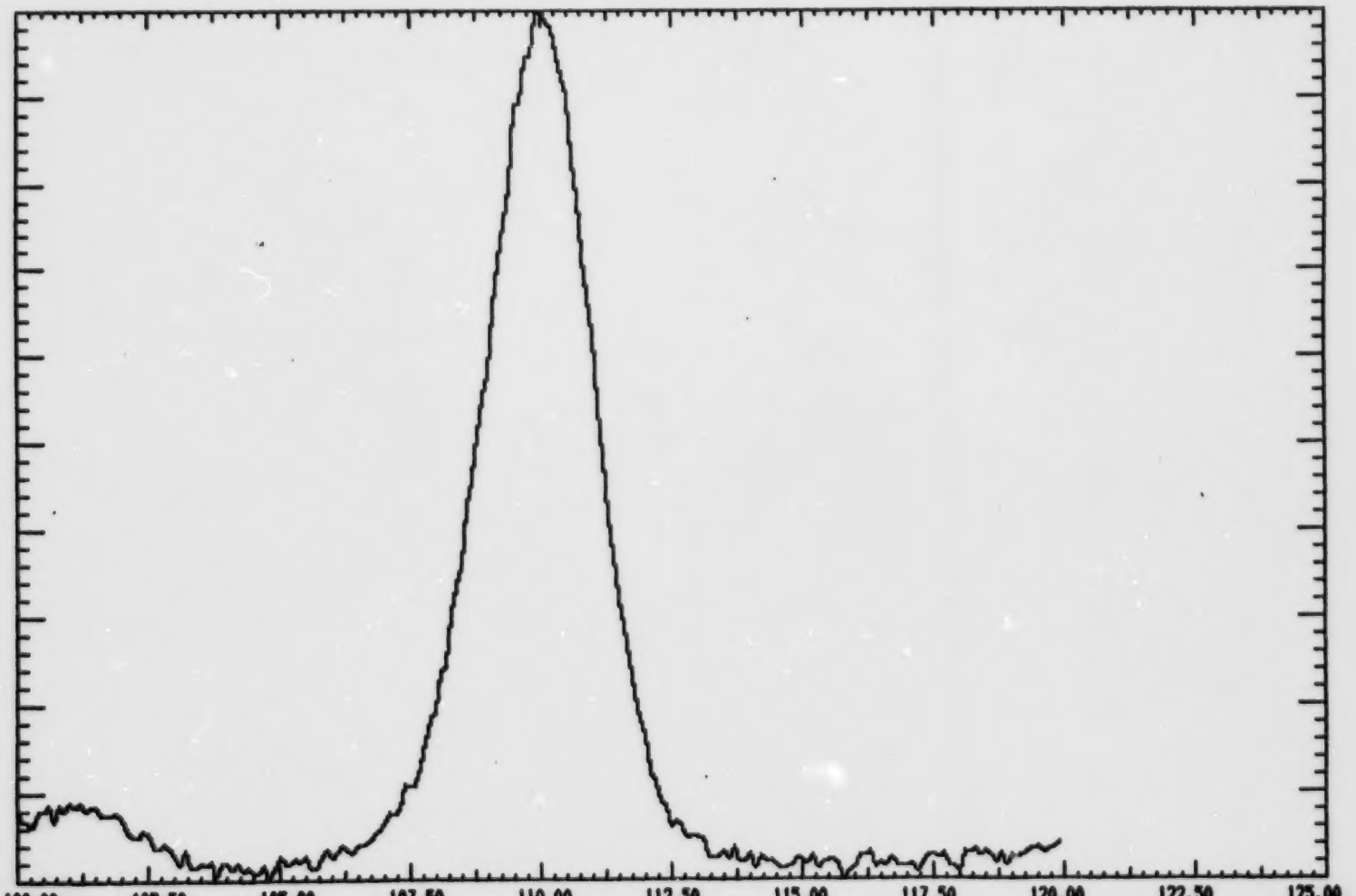
Mg XPS Analyser Energy = 50 eV Max Plotted Count Rate = 75394
Step Size = 1.00 eV. 7 Scans of 1150 channels at 50 ms per chan



AS.GL-4-140-A CM 15D/H POS.XPS C1 SLIT
OPT.MECA+SI2P MG300W
21 NOV.89 16H08

ASA1A Region 1 SI2P VG SCIENTIFIC

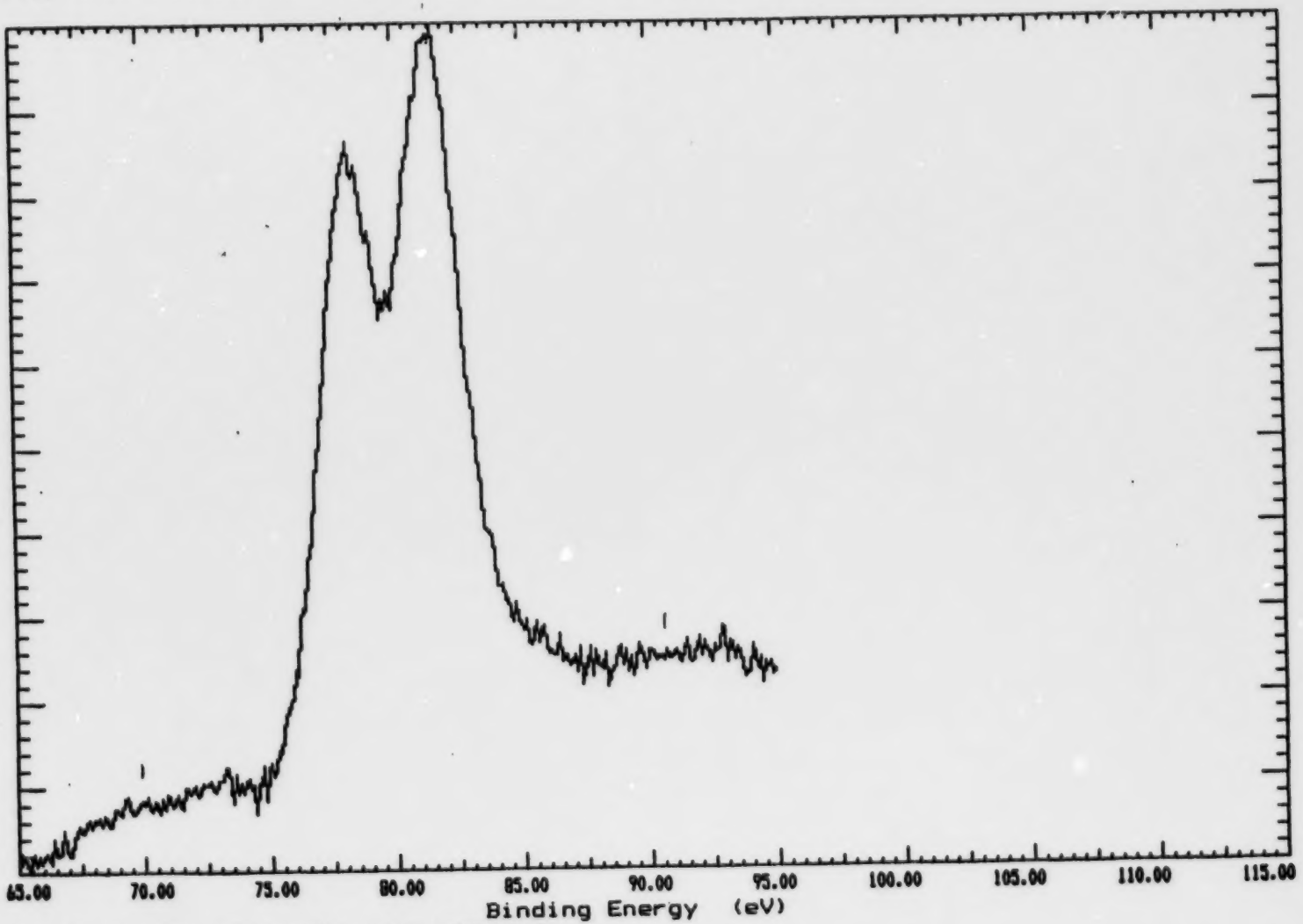
Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 3620
Step Size = 0.10 eV. 25 Scans of 200 channels at 50 ms per chan



AS.GL-4-140A IDEM ASA1 SAUF DETAILS
MG300 N-R
21 NOV.89 14H45

ASA1A Region 2 PT4F VG SCIENTIFIC

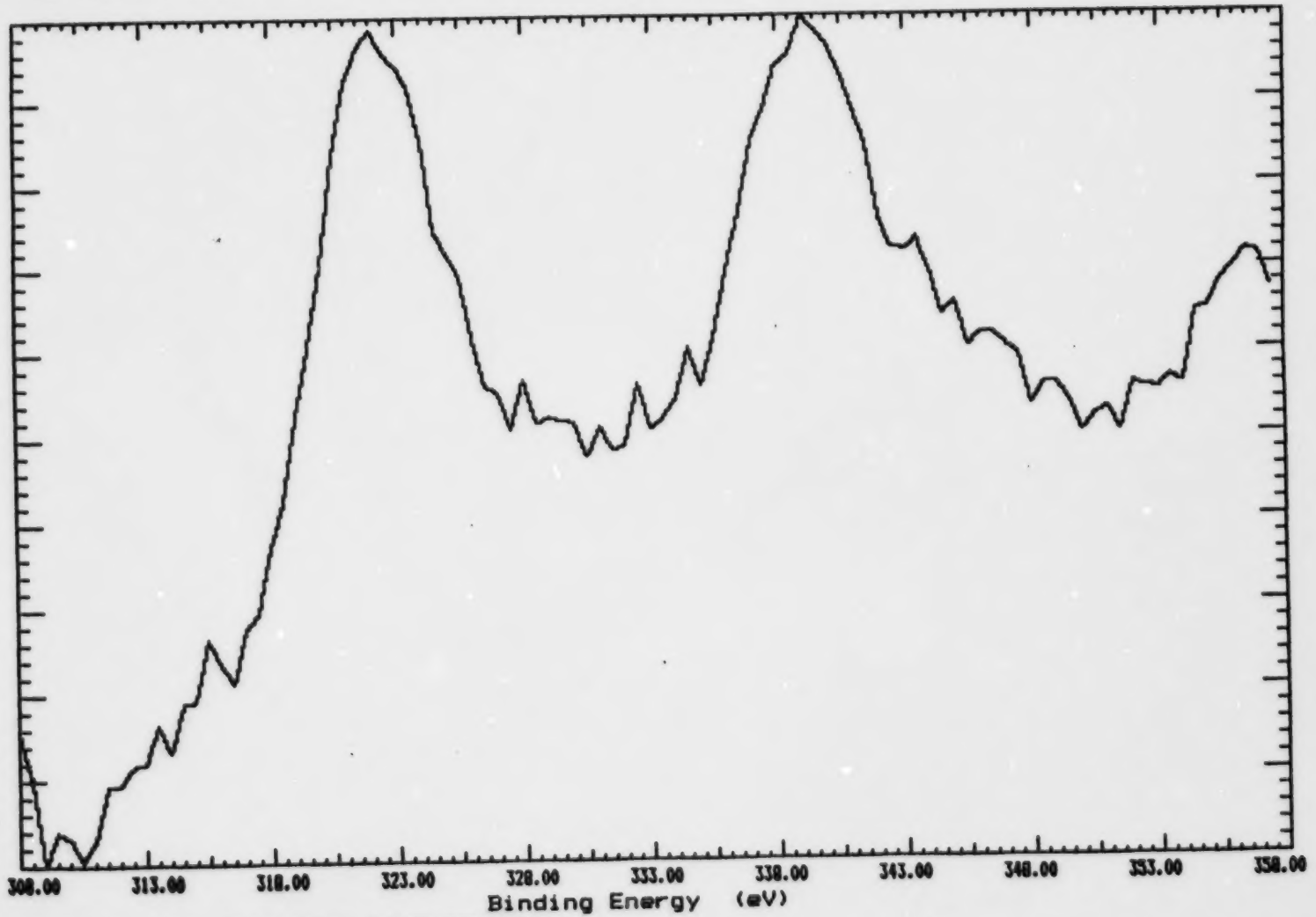
Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 464
Step Size = 0.10 eV. 500 Scans of 300 channels at 50 ms per chan



AS.GL-4-140A IDEM ASA1 SAUF DETAILS
MB300 N-R
21 NOV.89 14H45

ASA1A Region 3 PT4D VG SCIENTIFIC

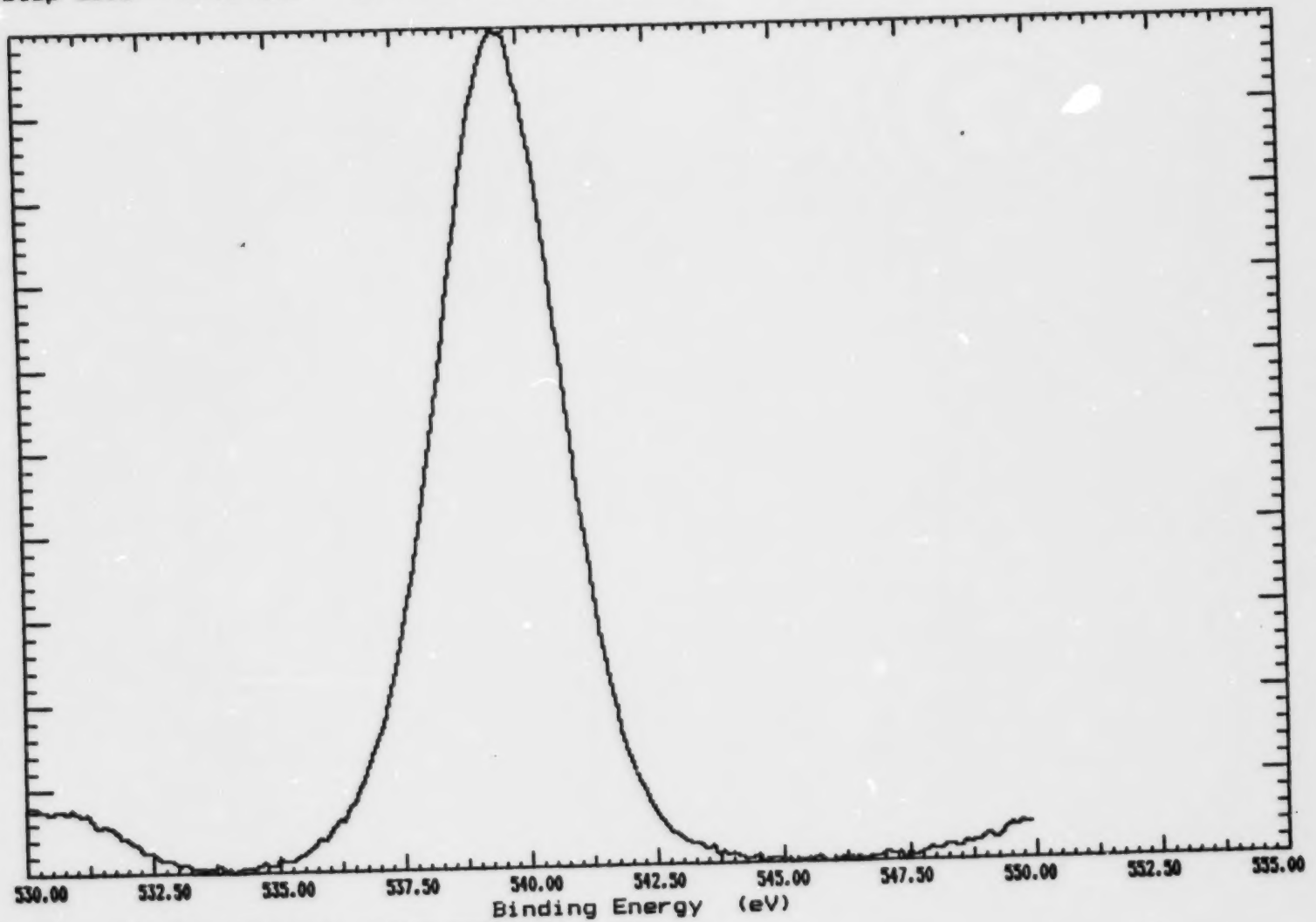
Mg XPS Analyser Energy = 50 eV Max Plotted Count Rate = 841
Step Size = 0.50 eV. 300 Scans of 100 channels at 50 ms per chan



AS.GL-4-140A IDEM ASA1 SAUF DETAILS
MG300 N-R
21 NOV.89 14H45

ASA1A Region 4 01S VG SCIENTIFIC

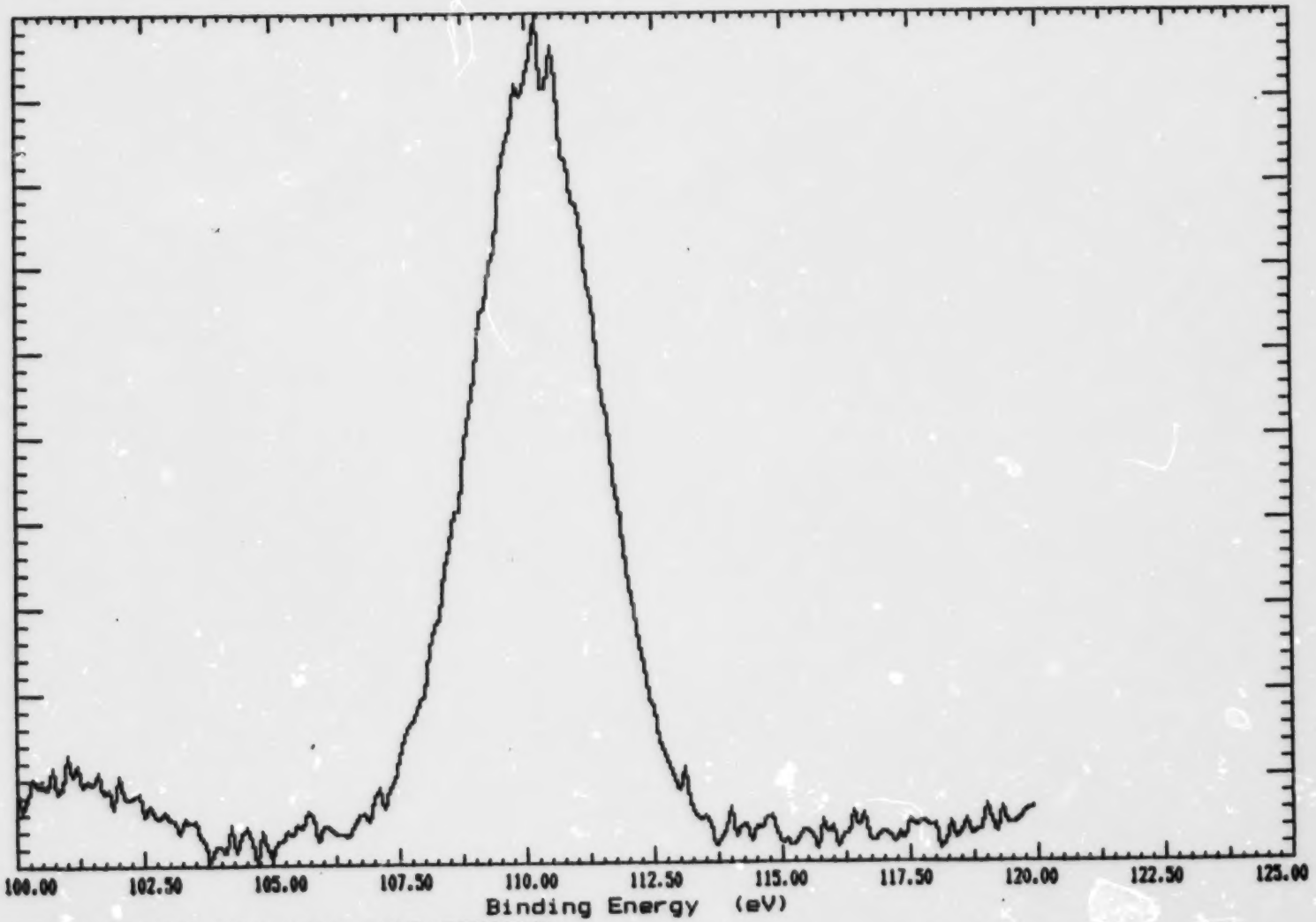
Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 17050
Step Size = 0.10 eV. 25 Scans of 200 channels at 50 ms per chan



AS.GL-4-140A IDEM ASA1 SAUF DETAILS
MG300 N-R
21 NOV.89 14H45

ASA1A Region 5 SI2P VG SCIENTIFIC

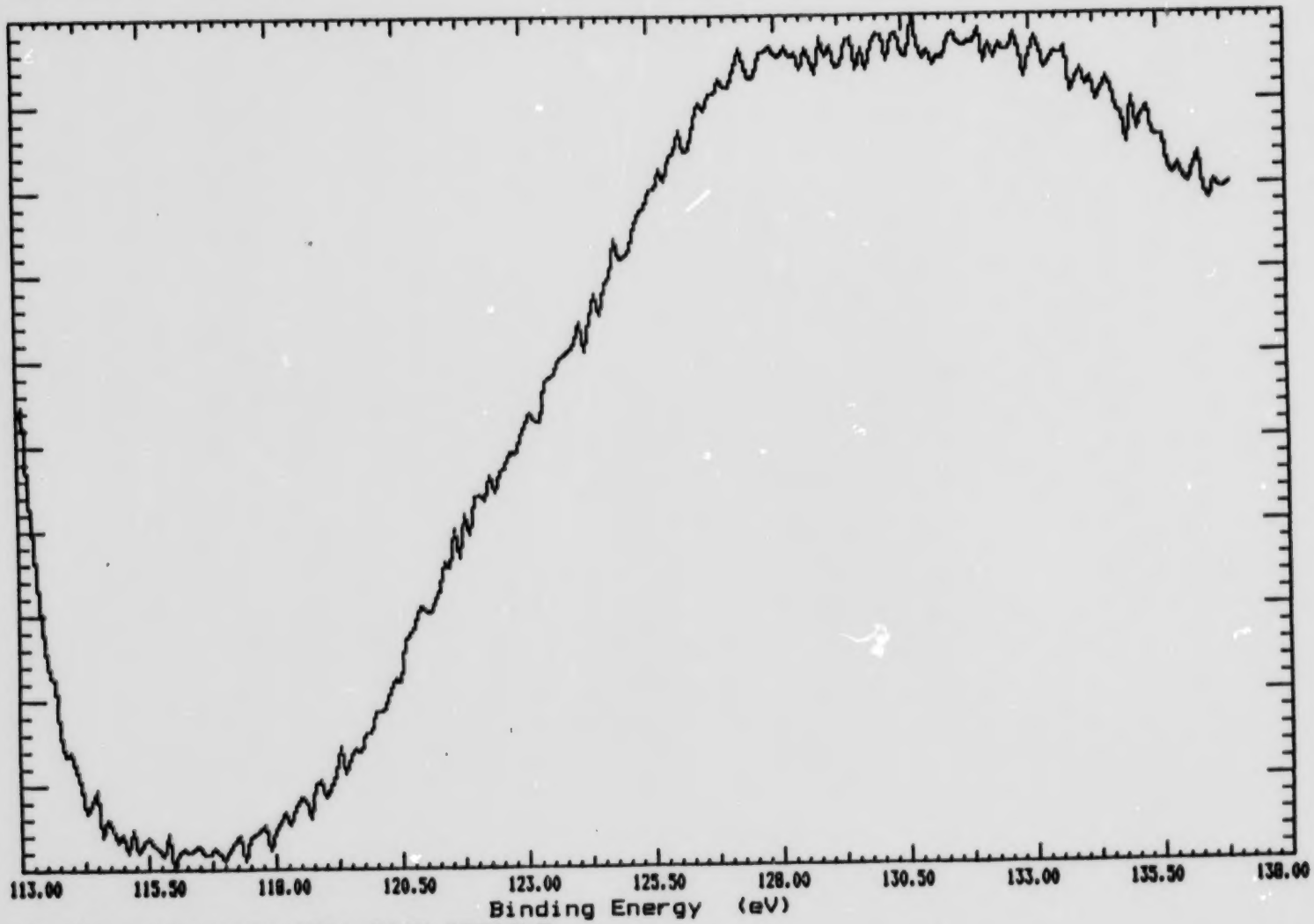
Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = . 3487
Step Size = 0.10 eV. 10 Scans of 200 channels at 50 ms per chan



AS.GL-4-140A IDEM ASA1 SAUF DETAILS
MG300 N-R
21 NOV.89 14H45

ASA1A Region 6 AL2S VG SCIENTIFIC

Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 447
Step Size = 0.10 eV. 500 Scans of 240 channels at 50 ms per chan



AS.GL-4-140A IDEM ASA1 SAUF DETAILS
MB300 N-R
21 NOV.89 14H45

Pt/HZSM-5(A)

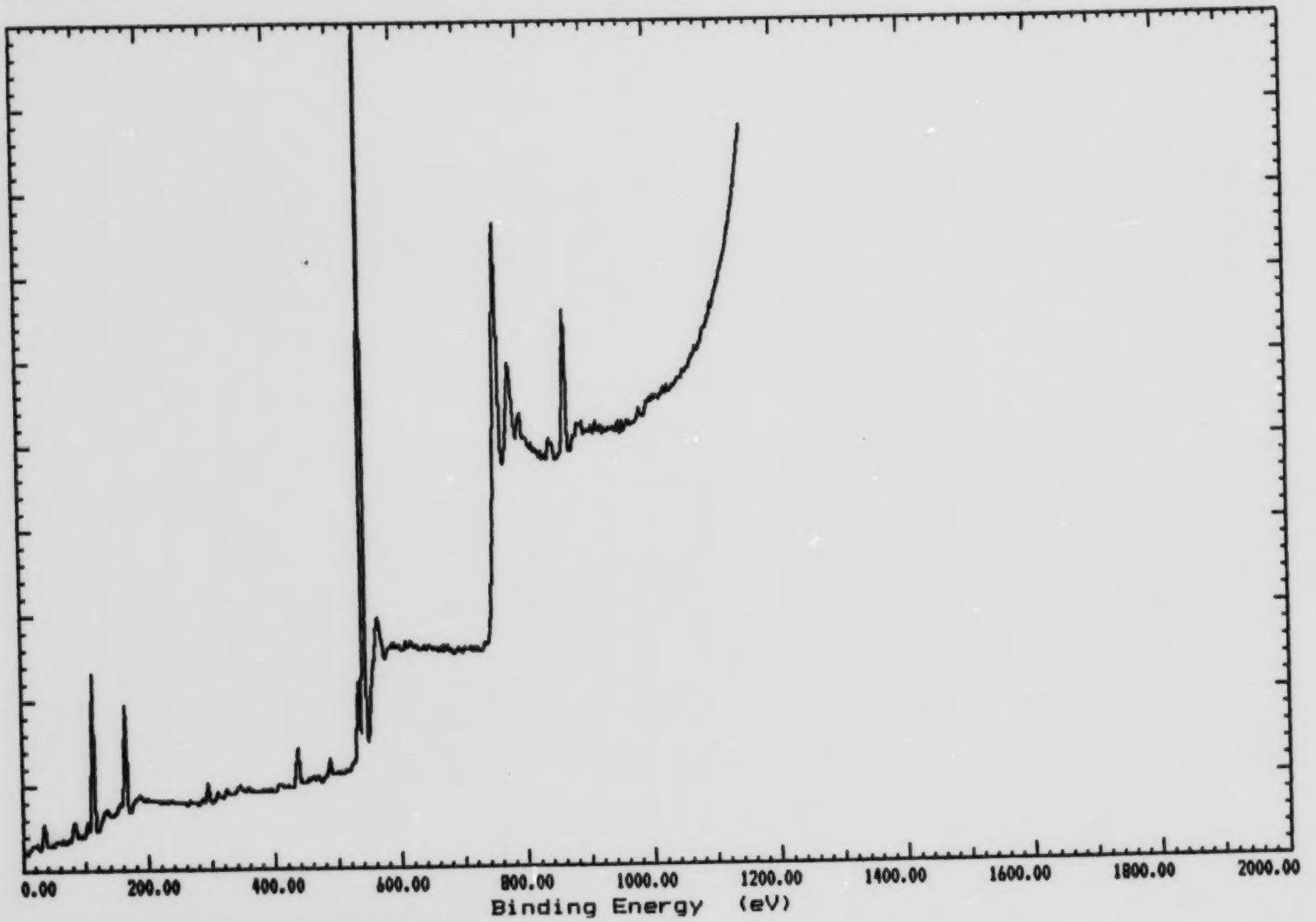
Sample No. 140A (1.85% Pt)

REDUCED

Prepared by ion-exchange

ASA22 Region 1 SURVEY VG SCIENTIFIC

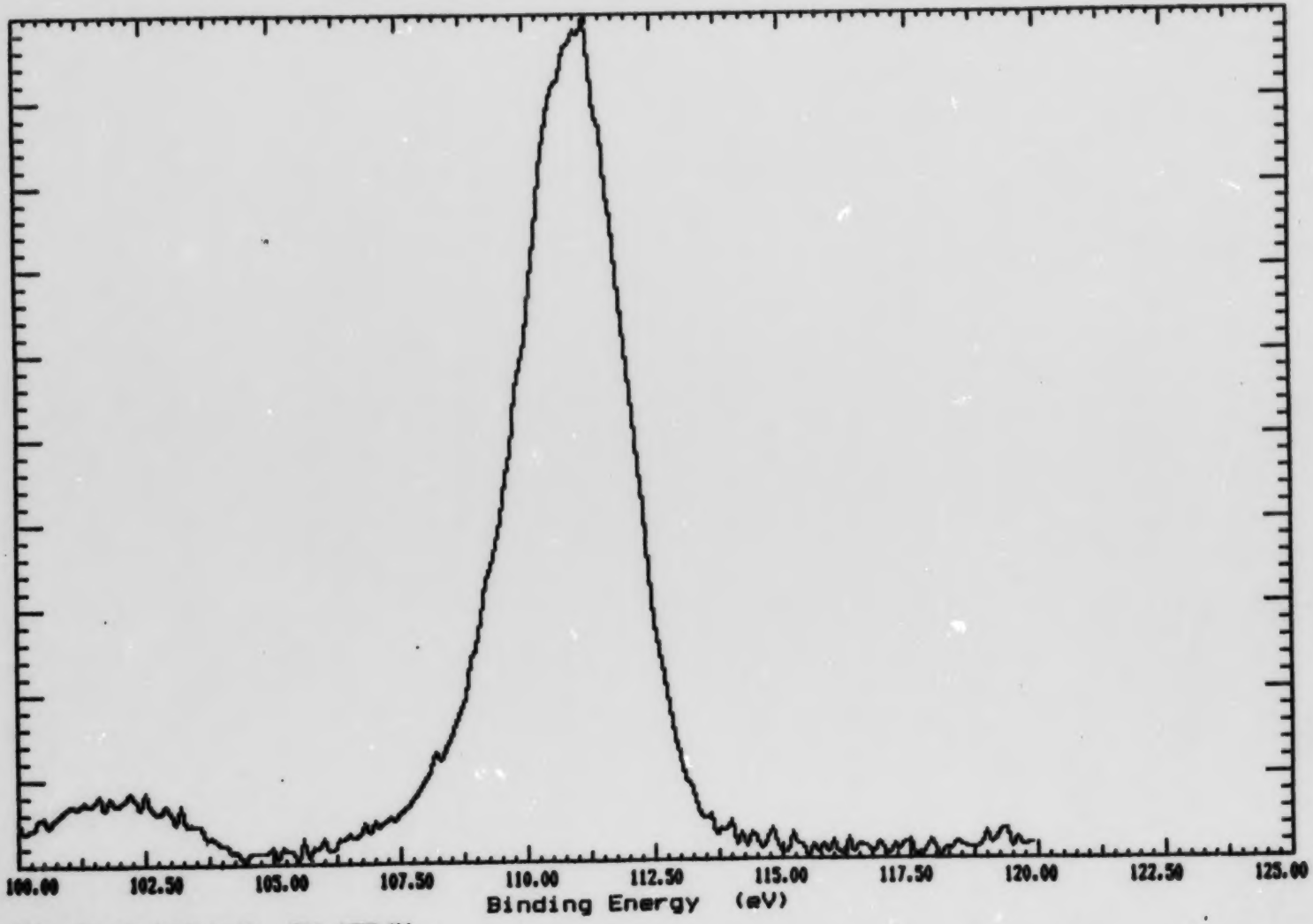
Mg XPS Analyser Energy = 50 eV Max Plotted Count Rate = 88851
Step Size = 1.00 eV. 7 Scans of 1150 channels at 50 ms per chan



GL-4-140A-R CM 15D/H MG300 NR
REPRISE SURVEY DE ASA12 OPT SI2P+MECA
15H00 30 NOV 89

ASA12 Region 1 SI2P VG SCIENTIFIC

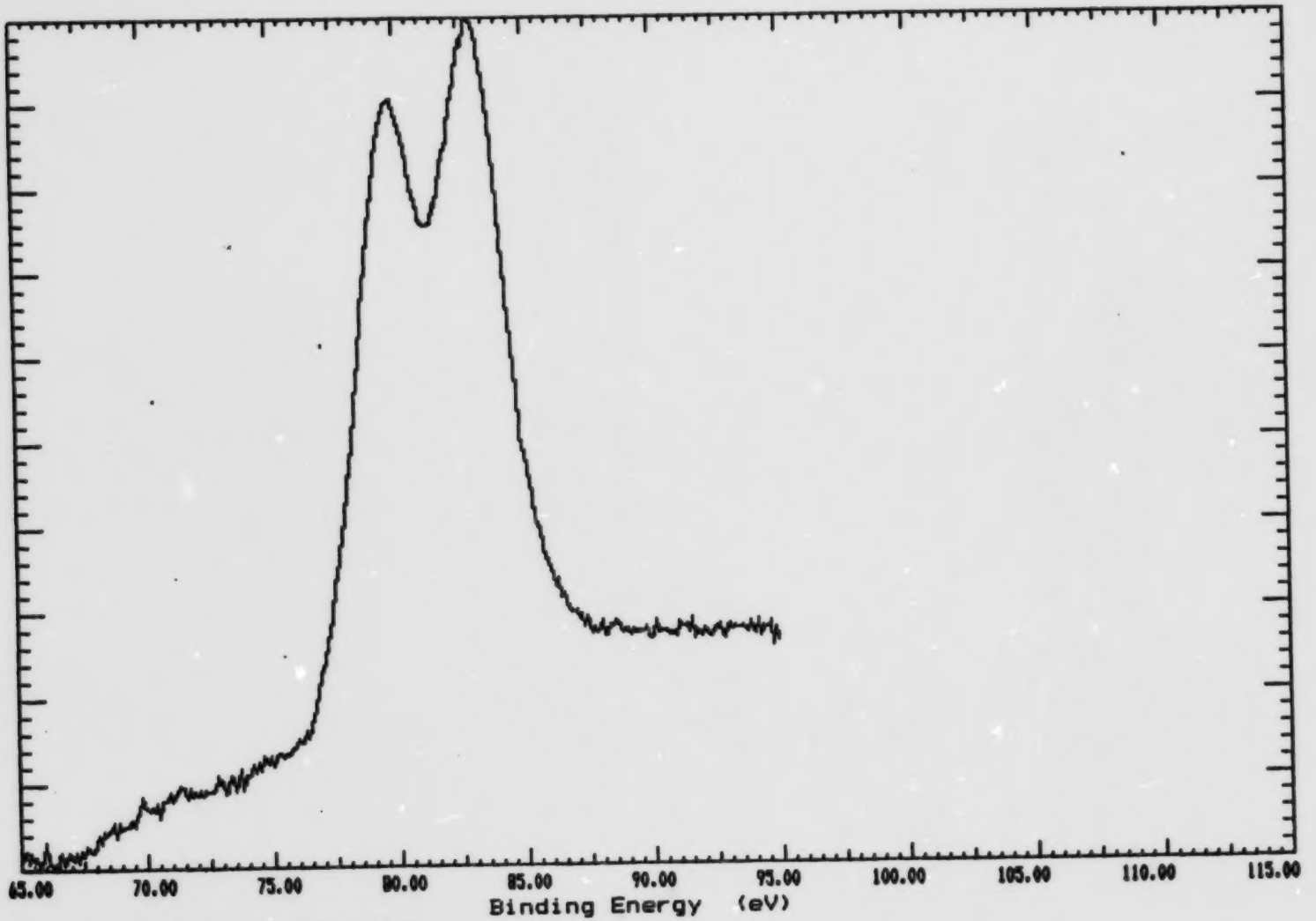
Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 3468
Step Size = 0.10 eV. 25 Scans of 200 channels at 50 ms per chan



AS. GL-4-140-A-R CM 15D/H
MG300 NR
27 NOV.89 17H17

ASA12 Region 2 PT4F VG SCIENTIFIC

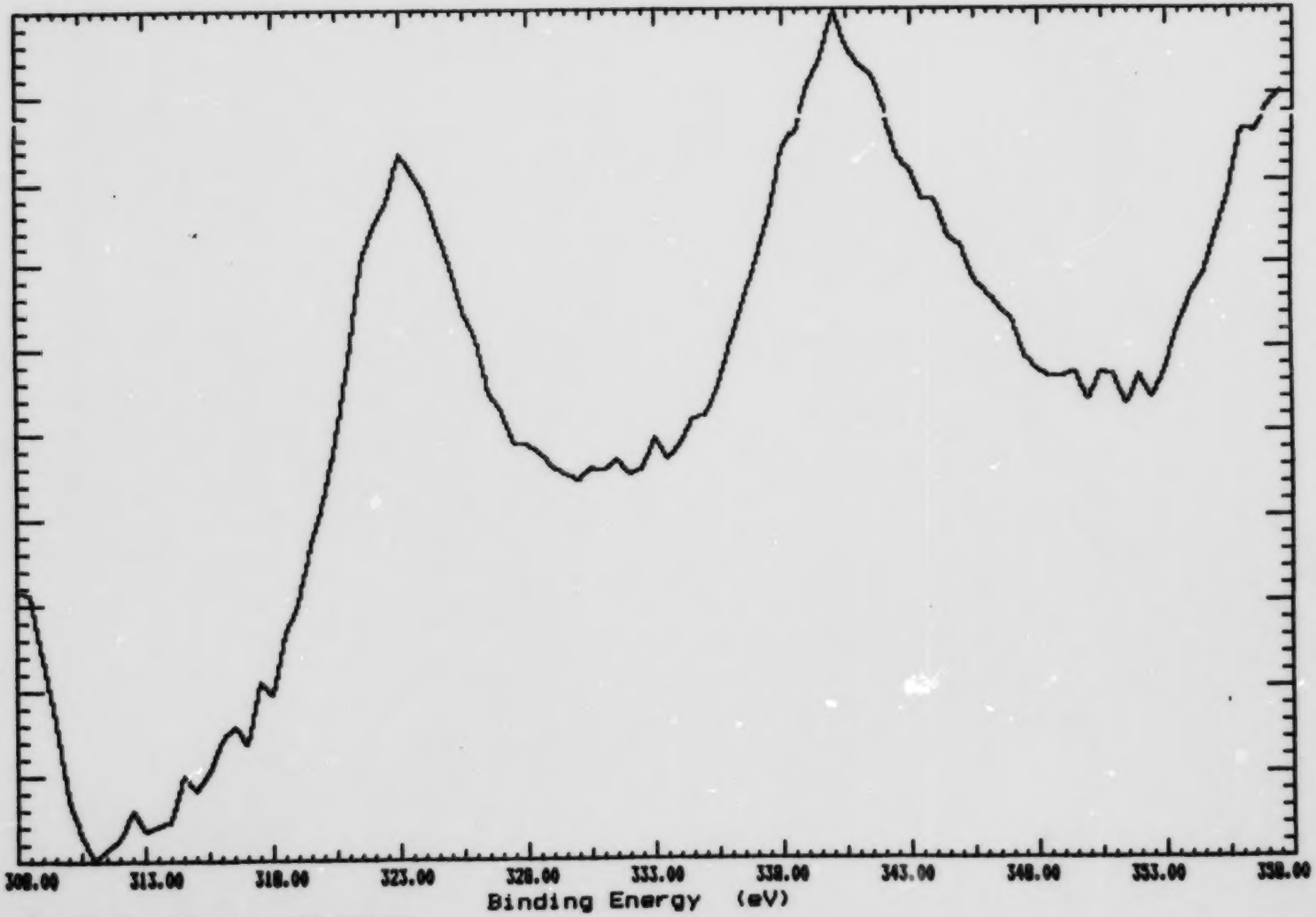
Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 417
Step Size = 0.10 eV. 2000 Scans of 300 channels at 50 ms per chan



AS. GL-4-140-A-R CM 15D/H
MG300 NR
27 NOV.89 17H17

ASA12 Region 3 PT4D VG SCIENTIFIC

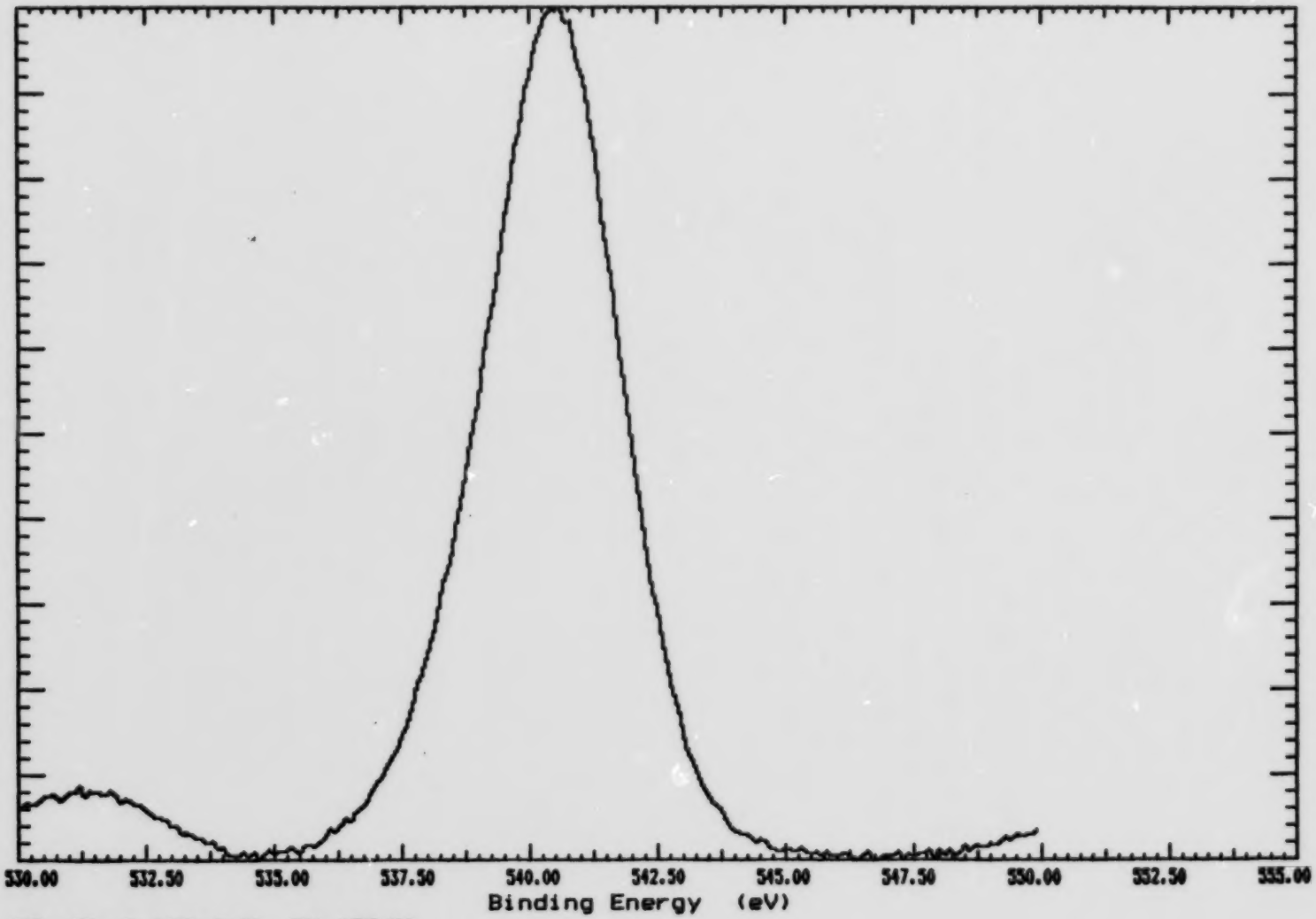
Mg XPS Analyser Energy = 50 eV Max Plotted Count Rate = 1040
Step Size = 0.50 eV. 600 Scans of 100 channels at 50 ms per chan



AS. GL-4-140-A-R CM 15D/H
MB300 NR
27 NOV.89 17H17

ASA12 Region 4 01S VG SCIENTIFIC

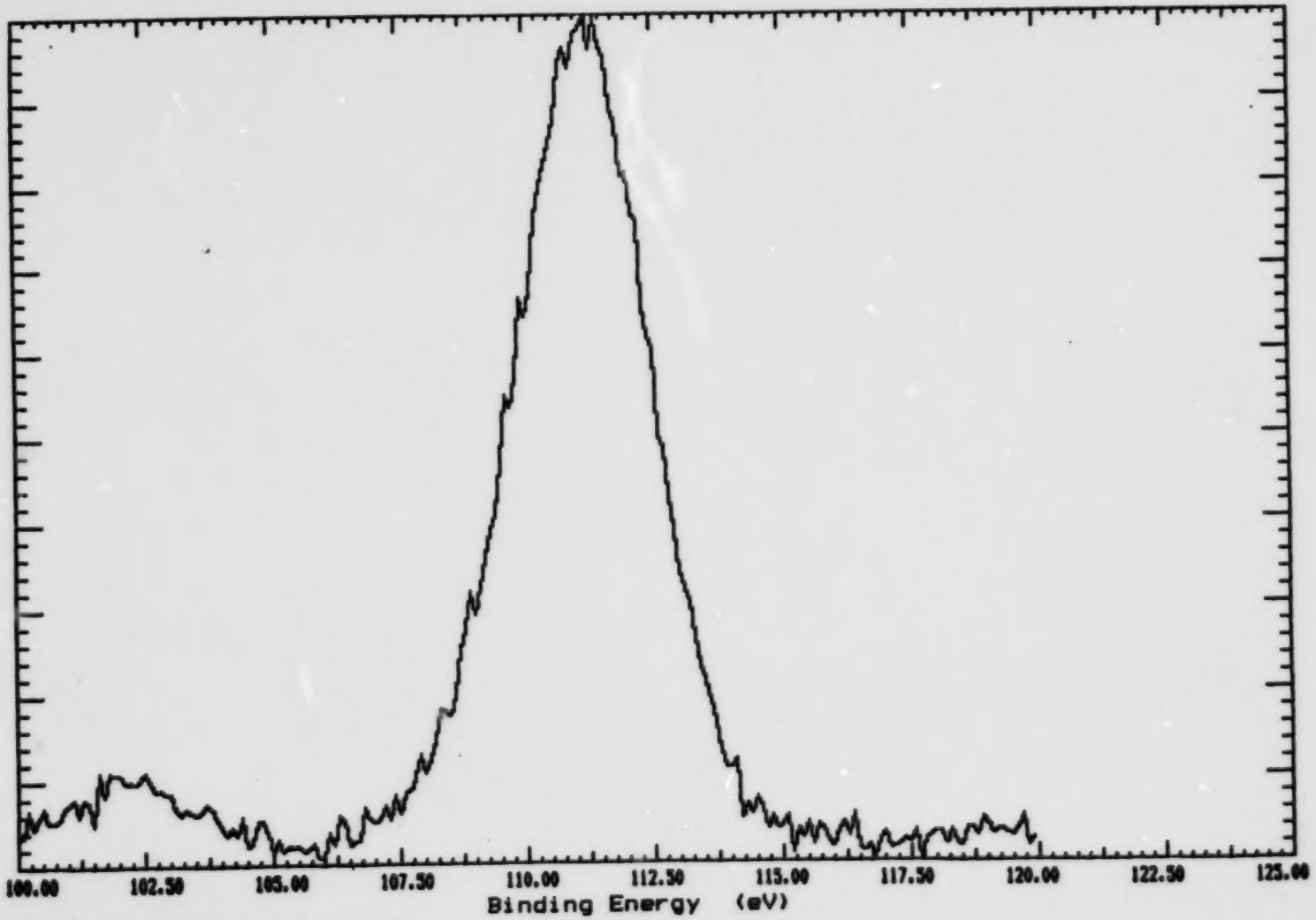
Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 14067
Step Size = 0.10 eV. 25 Scans of 200 channels at 50 ms per chan



AS. GL-4-140-A-R CM 15D/H
MG300 NR
27 NOV.89 17H17

ASA12 Region 5 SI2P VG SCIENTIFIC

Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 2764
Step Size = 0.10 eV. 15 Scans of 200 channels at 50 ms per chan

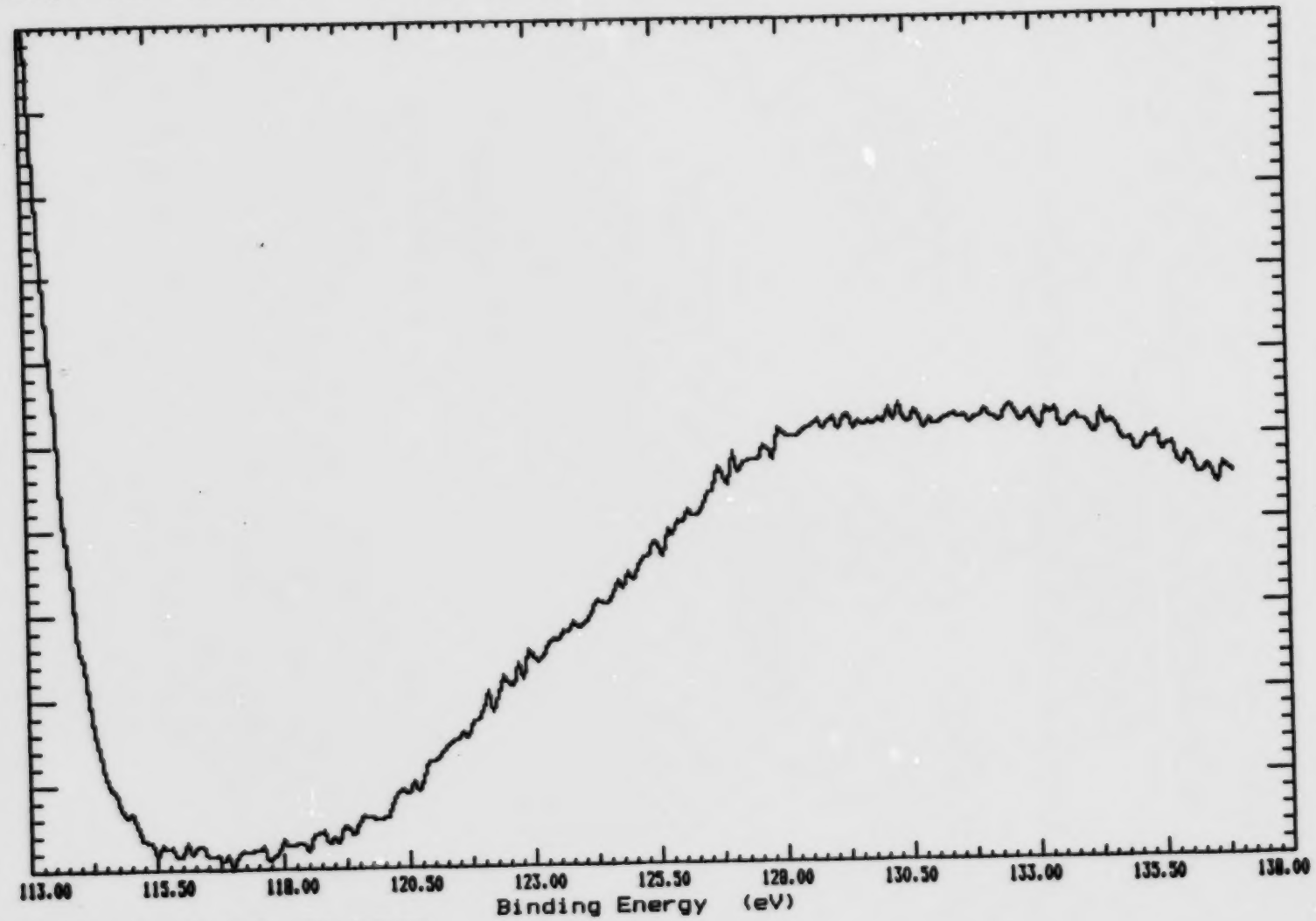


AB. GL-4-140-A-R CM 15D/H
MB300 NR
27 NOV.89 17H17

ASA12 Region 6 AL2S

VG SCIENTIFIC

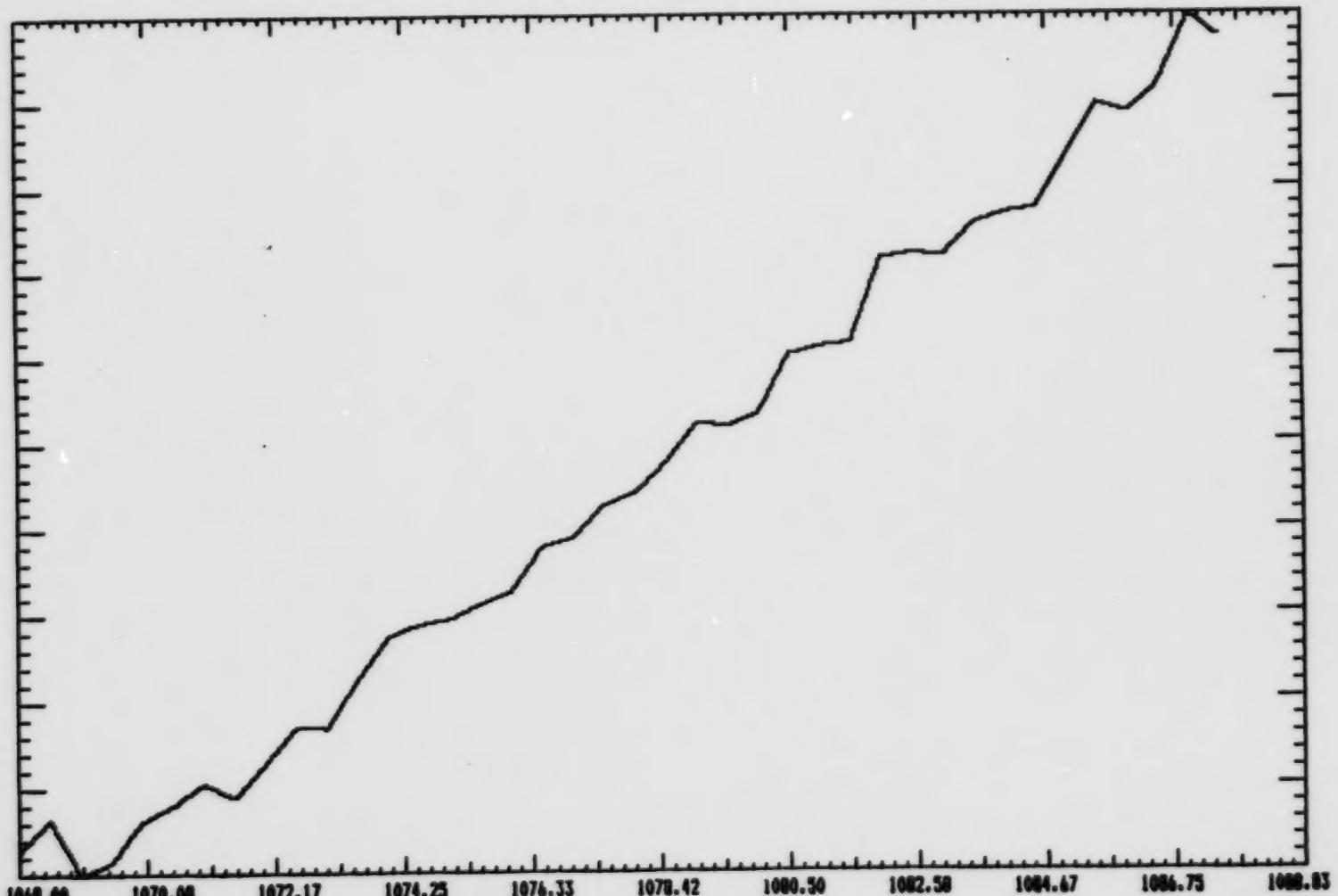
Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 782
Step Size = 0.10 eV. 500 Scans of 240 channels at 50 ms per chan



AS. GL-4-140-A-R CM 15D/H
MG300 NR
27 NOV.89 17H17

ASA12 Region 7 NA1S VG SCIENTIFIC

Mg XPS Analyser Energy = 50 eV Max Plotted Count Rate = 3502
Step Size = 0.50 eV. 300 Scans of 40 channels at 50 ms per chan



AS. GL-4-140-A-R CM 15D/H
MG300 NR
27 NOV.89 17H17

Pt/HZSM-5(A)

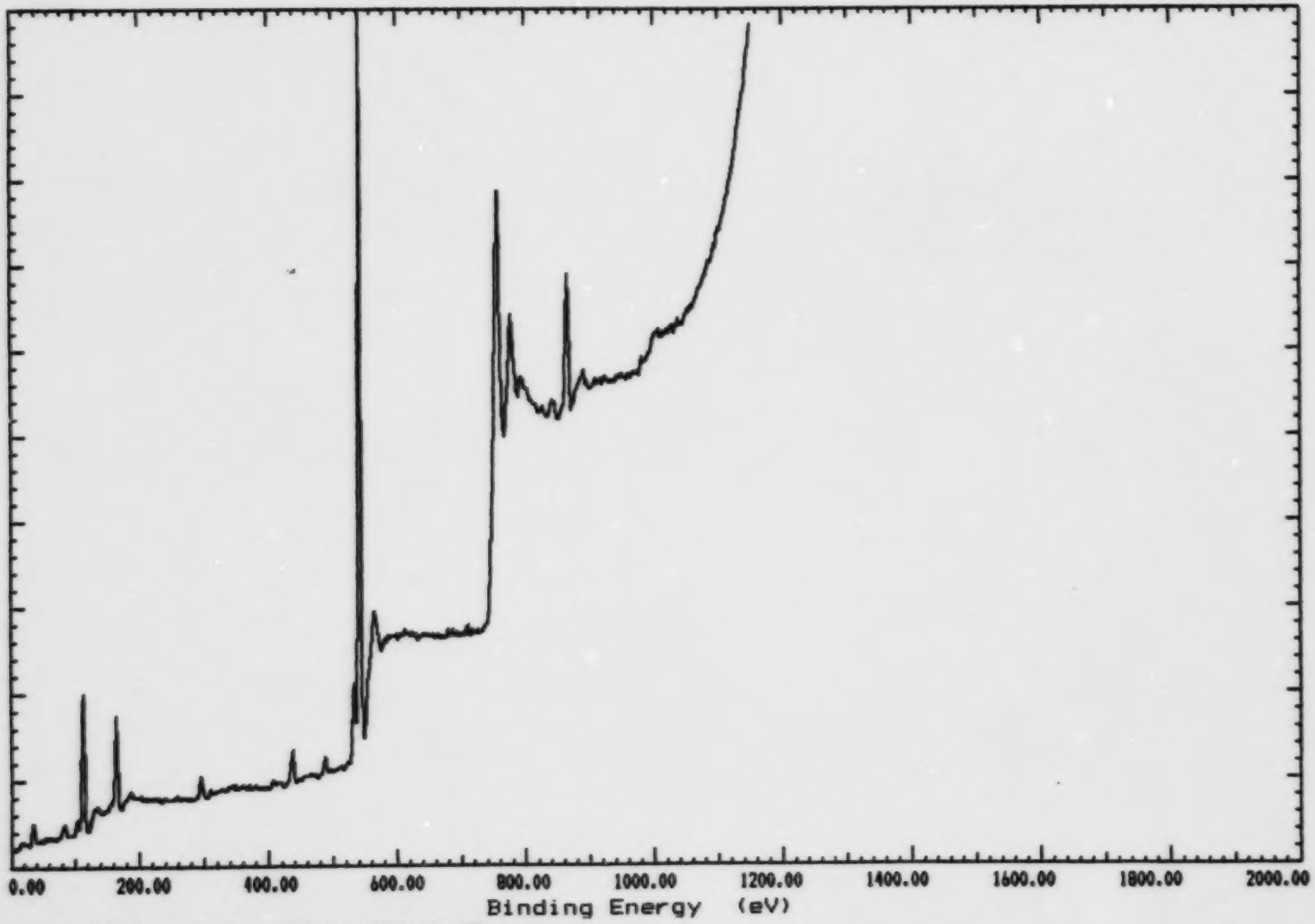
Sample No. 140A (1.85% Pt)

REDUCED AND GROUND

Prepared by ion-exchange

ASA21 Region 1 SURVEY VG SCIENTIFIC

Mg XPS Analyser Energy = 50 eV Max Plotted Count Rate = 74499
Step Size = 1.00 eV. 7 Scans of 1150 channels at 50 ms per chan

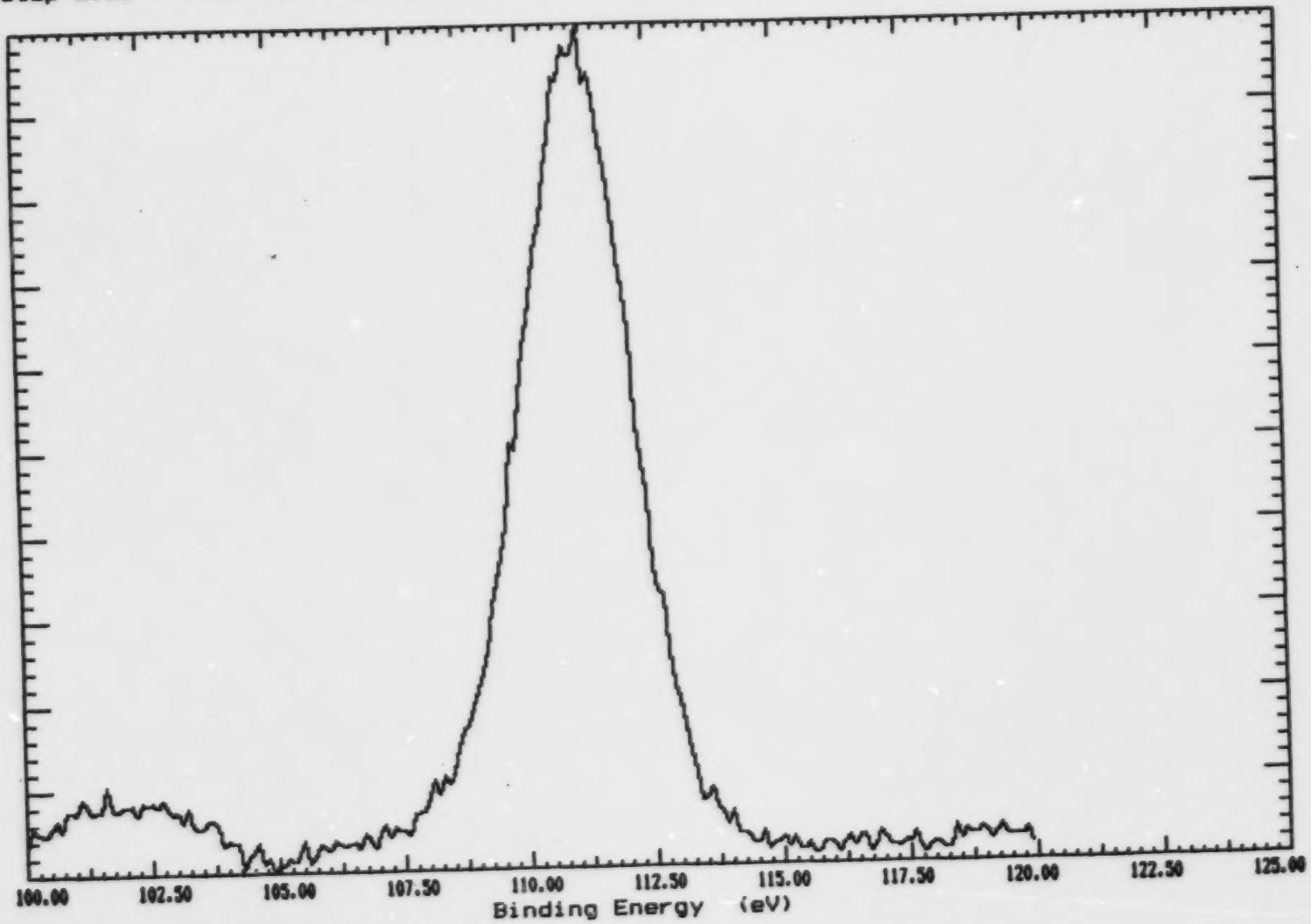


GL-4-140A-R-B CM 15D/H MG300 NR
REPRISE DU SURVEY DE ASA11 OPT SI2P+MECA
14H45 30 NOV 89

ASA11 Region 1 SI2P

VG SCIENTIFIC

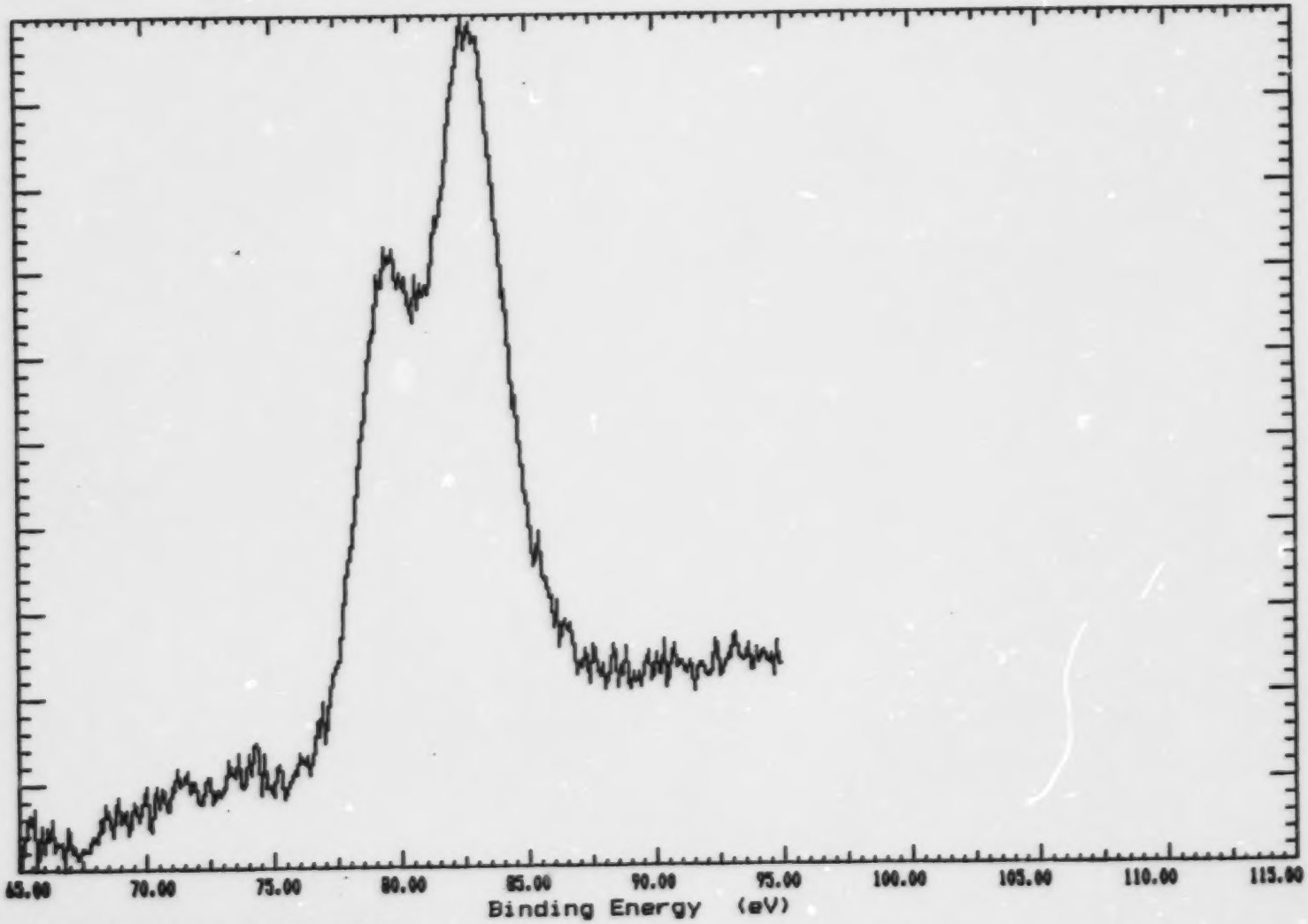
Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 4130
Step Size = 0.10 eV. 17 Scans of 200 channels at 50 ms per chan



AS.BL-4-140A-R-B CM 15D/H
MG300 N-R
27 NOV.89 14H37

ASA11 Region 2 PT4F VG SCIENTIFIC

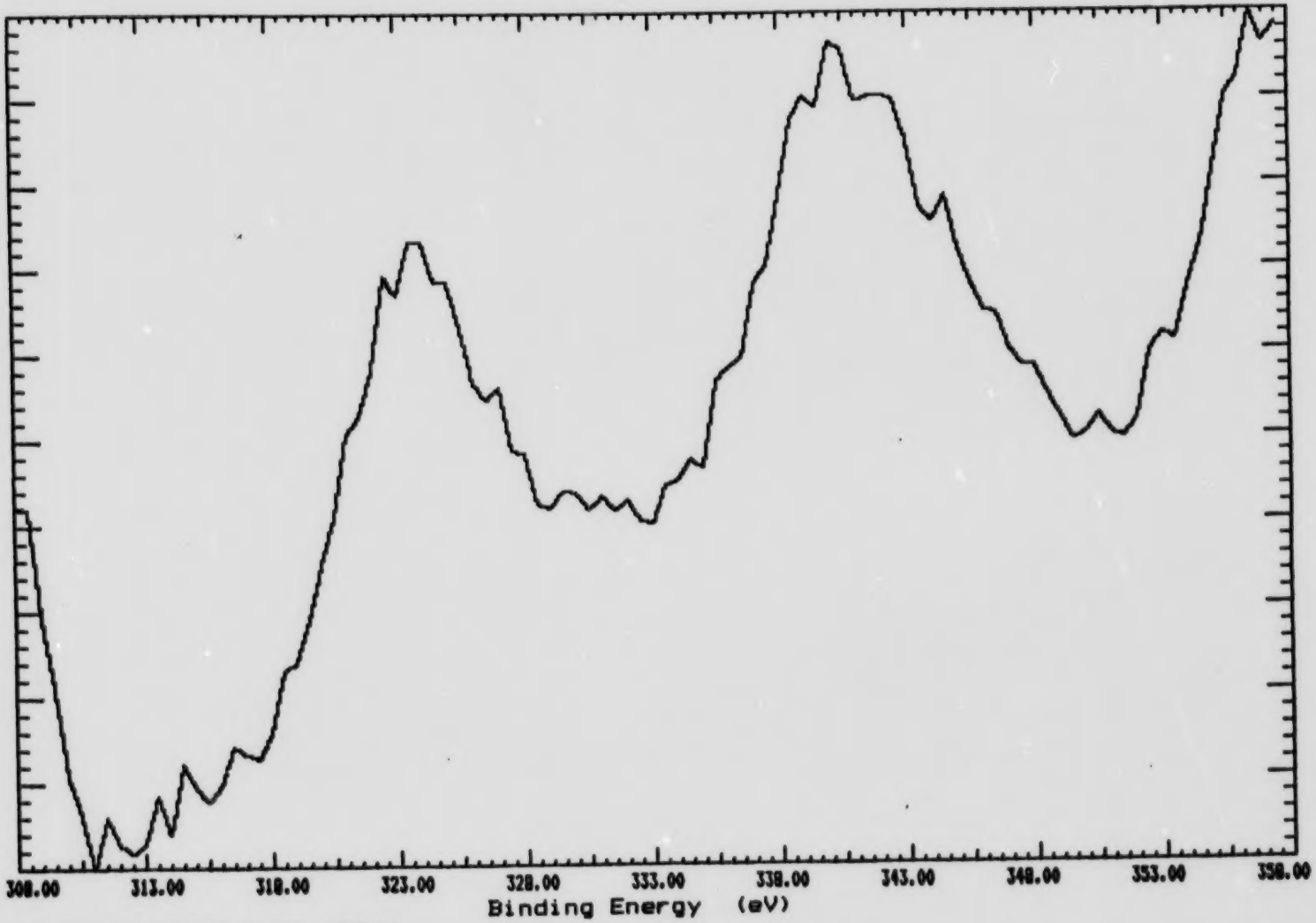
Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 463
Step Size = 0.10 eV. 302 Scans of 300 channels at 50 ms per chan



AS.BL-4-140A-R-B CM 15D/H
MG300 N-R
27 NOV.89 14H37

ASA11 Region 3 PT4D VG SCIENTIFIC

Mg XPS Analyser Energy = 50 eV Max Plotted Count Rate = 1101
Step Size = 0.50 eV. 235 Scans of 100 channels at 50 ms per chan

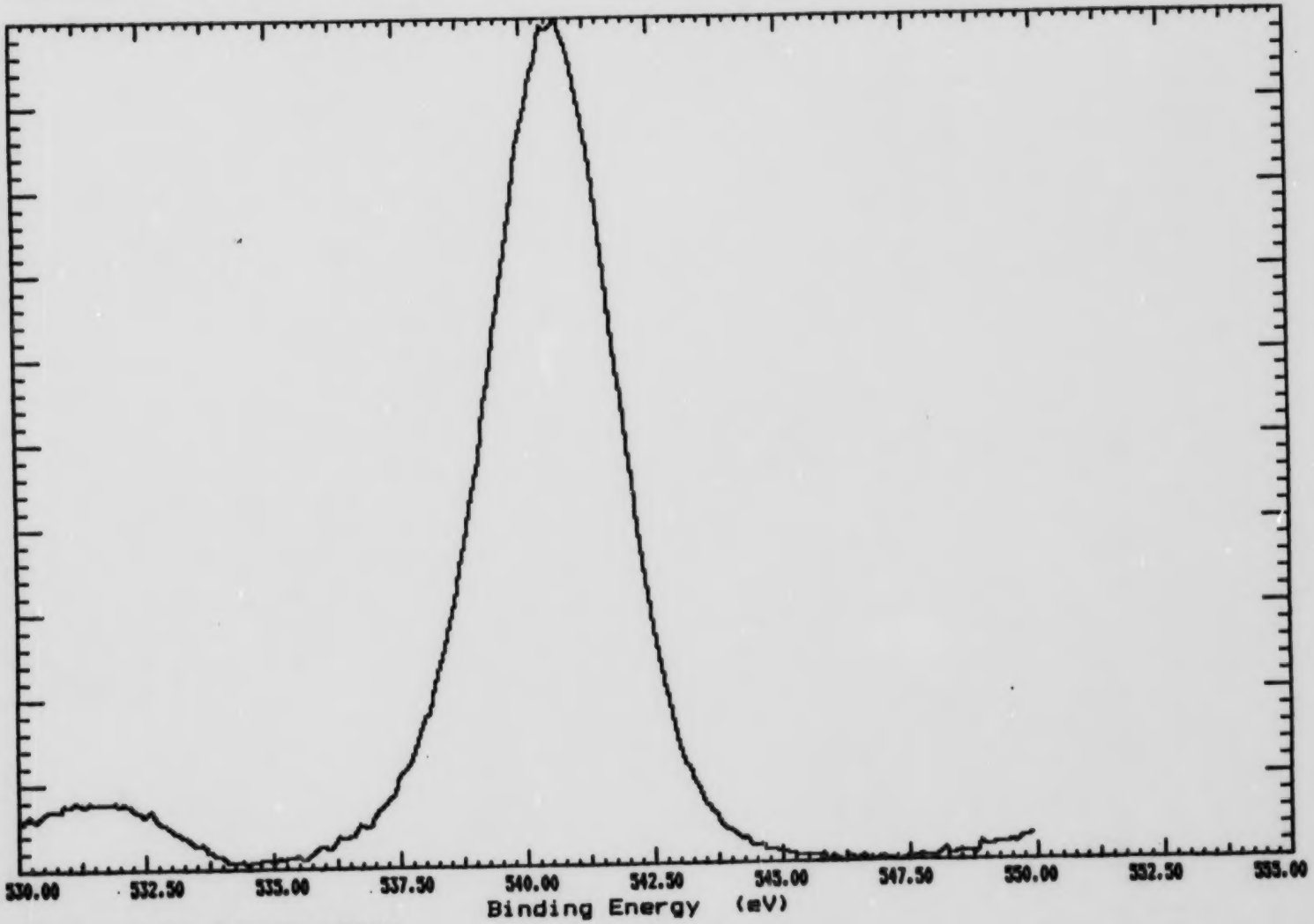


AS.GL-4-140A-R-B CM 15D/H
MG300 N-R
27 NOV.89 14H37

ASA11 Region 4 01S

VG SCIENTIFIC

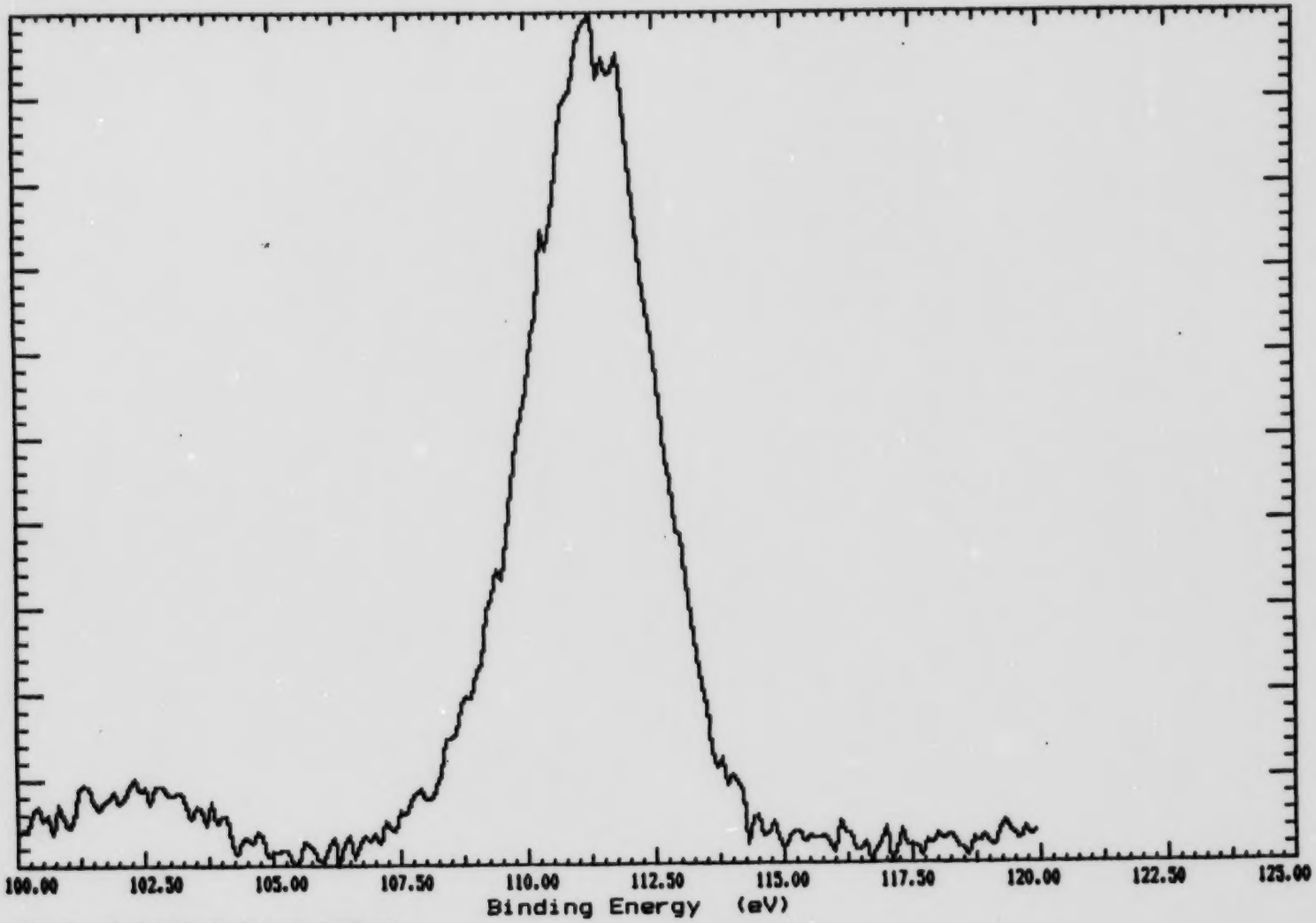
Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 20714
Step Size = 0.10 eV. 21 Scans of 200 channels at 50 ms per chan



AS.GL-4-140A-R-B CM 15D/H
MG300 N-R
27 NOV.89 14H37

ASA11 Region 5 SI2P VG SCIENTIFIC

Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 3899
Step Size = 0.10 eV. 10 Scans of 200 channels at 50 ms per chan

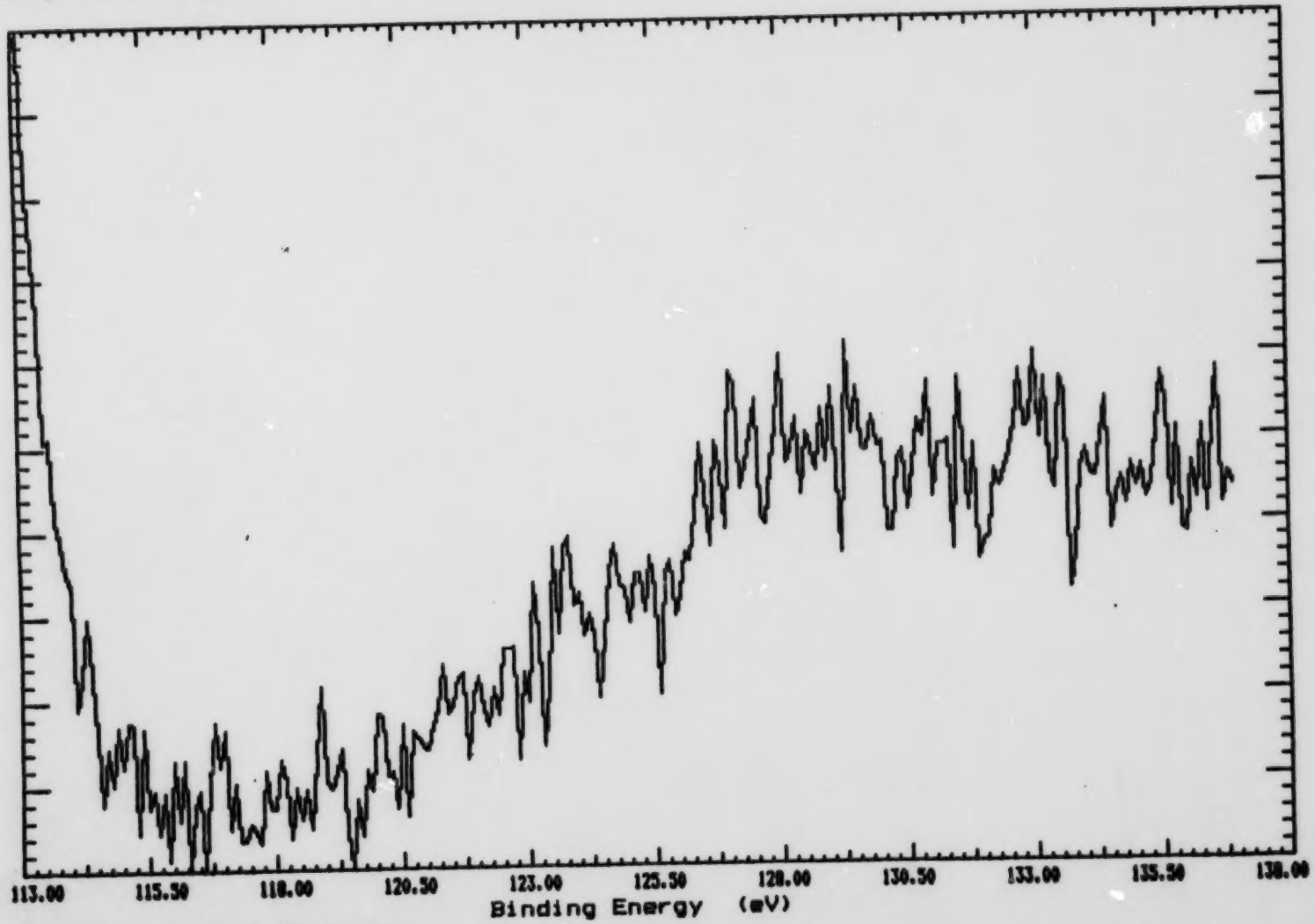


AS.GL-4-140A-R-B CM 15D/H
MG300 N-R
27 NOV.89 14H37

ASA11 Region 6 AL2S

VG SCIENTIFIC

Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 1263
Step Size = 0.10 eV. 5 Scans of 240 channels at 50 ms per chan

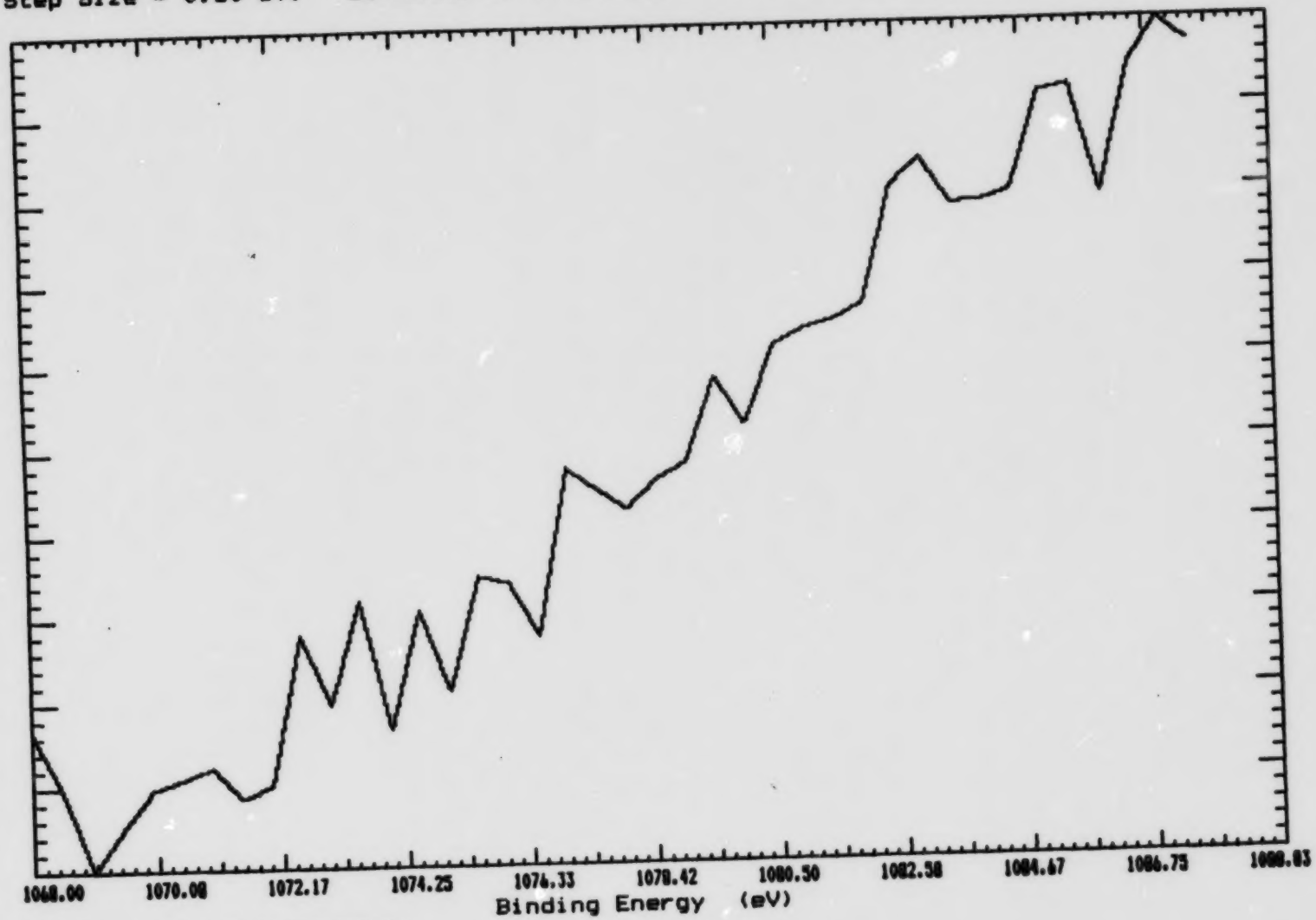


AS.BL-4-140A-R-B CM 15D/H
MG300 N-R
27 NOV.89 14H37

ASA11 Region 7 NA1S

VG SCIENTIFIC

Mg XPS Analyser Energy = 50 eV Max Plotted Count Rate = 3831
Step Size = 0.50 eV. 20 Scans of 40 channels at 50 ms per chan



AS.GL-4-140A-R-B CM 15D/H
MG300 N-R
27 NOV.89 14H37

Pt/HZSM-5(B)

Sample No. 140B (2.53% Pt)

Prepared by ion-exchange

Pt/HZSM-5(B)

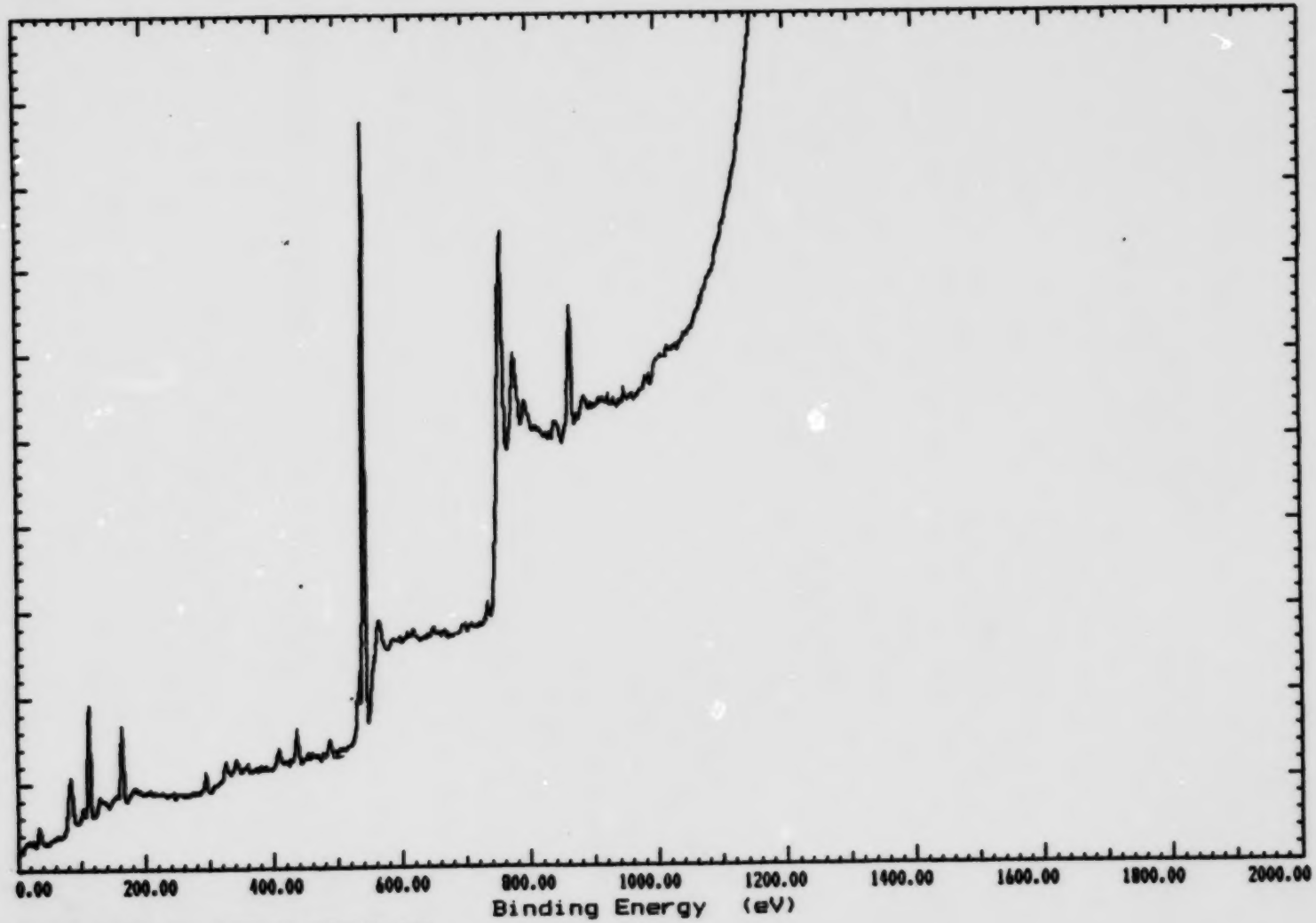
Sample No. 140B (2.53% Pt)

CALCINED

Prepared by ion-exchange

ASA28 Region 1 SURVEY VG SCIENTIFIC

Mg XPS Analyser Energy = 50 eV Max Plotted Count Rate = 66674
Step Size = 1.00 eV. 7 Scans of 1150 channels at 50 ms per chan

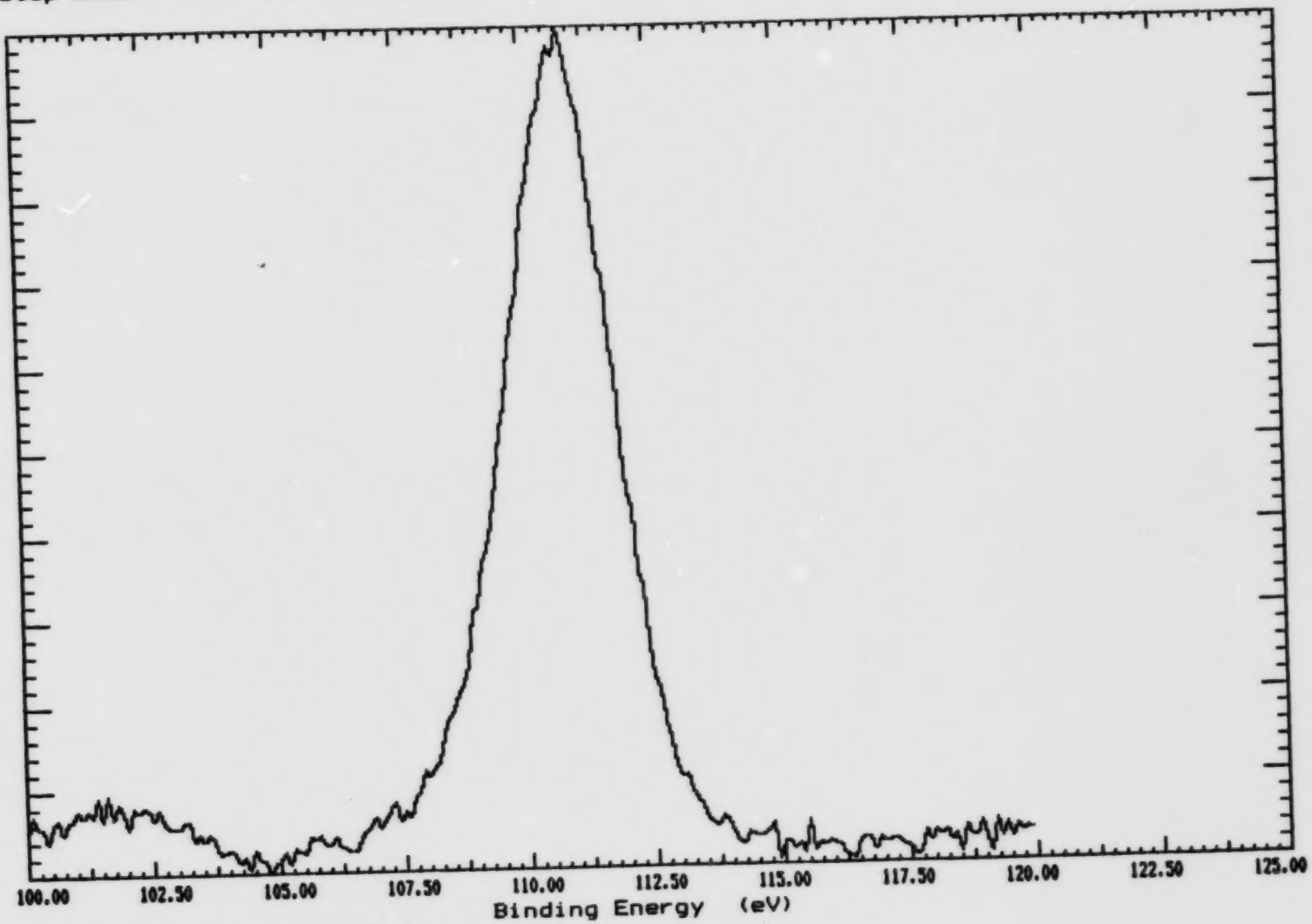


GL-4-140B CM 15D/H MG300 NR
OPT SI2P+MECA
13H10 DEC 89

ASA28 Region 2 SI2P

VG SCIENTIFIC

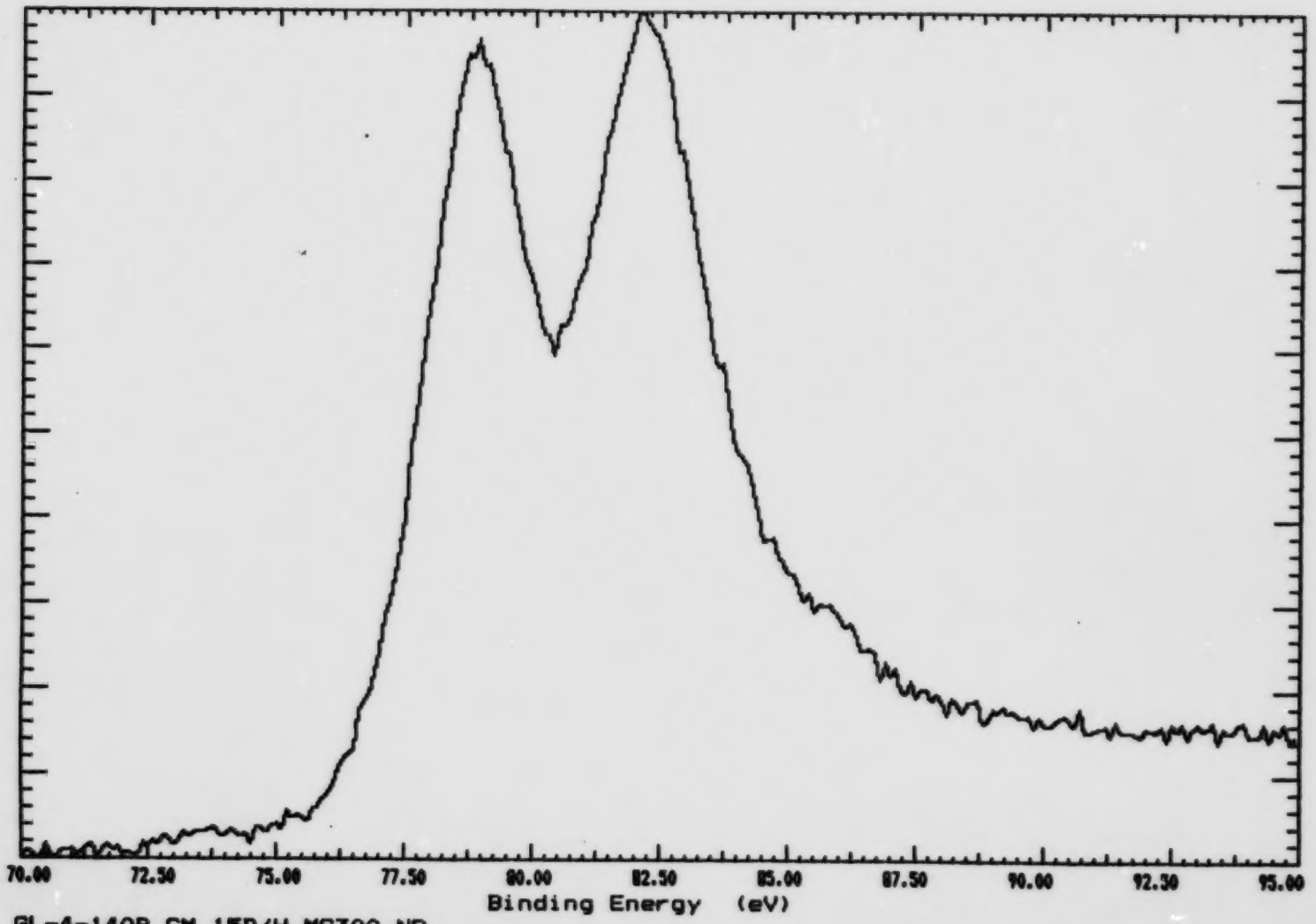
Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 2226
Step Size = 0.10 eV. 40 Scans of 200 channels at 50 ms per chan



GL-4-140B CM 15D/H MG300 NR
OPT SI2P+MECA
13H10 DEC 89

ASA28 Region 3 ALPTCS VG SCIENTIFIC

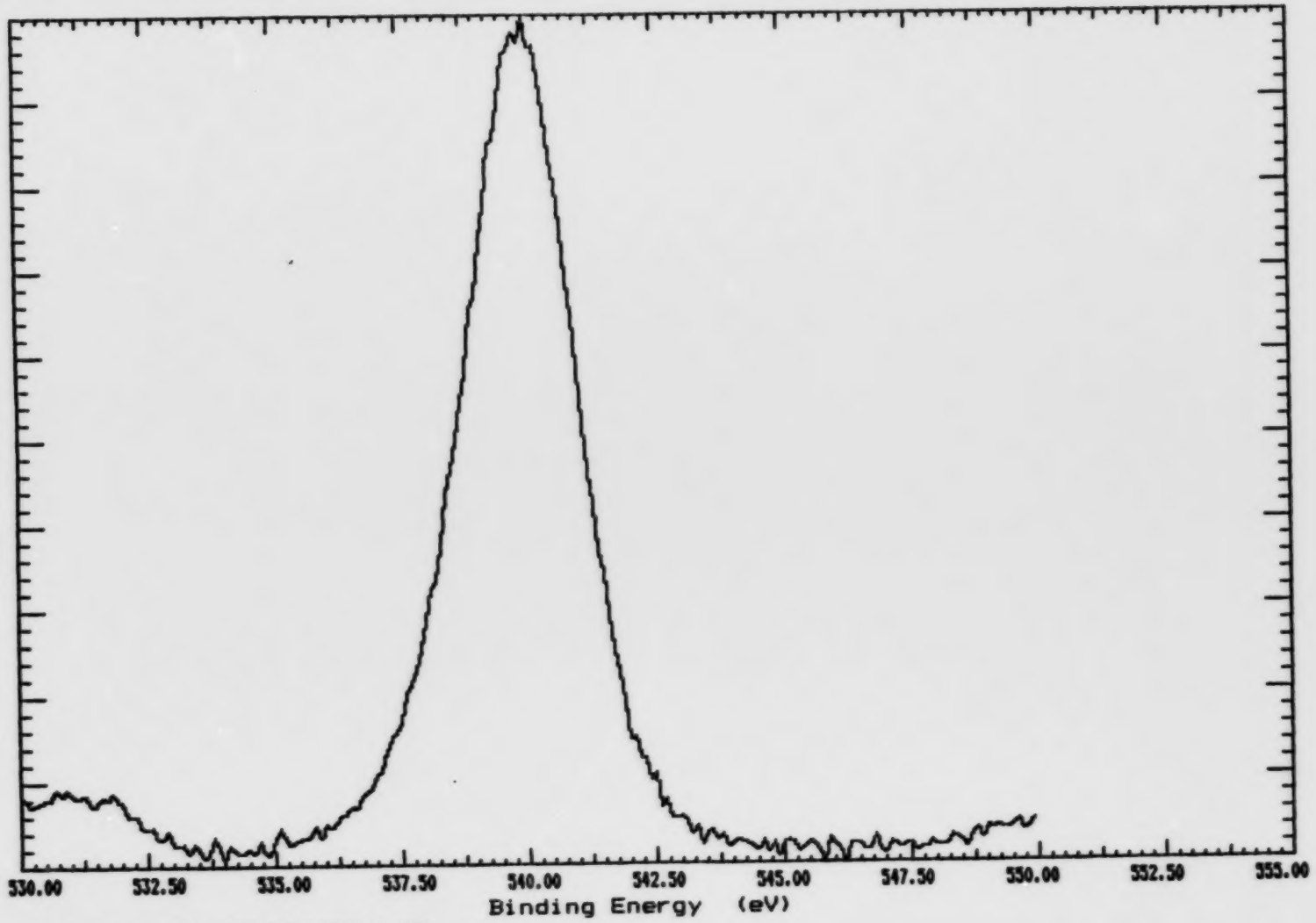
Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 1006
Step Size = 0.10 eV. 301 Scans of 250 channels at 50 ms per chan



GL-4-140B CM 15D/H MG300 NR
OPT SI2P+MECA
13H10 DEC 89

ASA28 Region 4 01S VG SCIENTIFIC

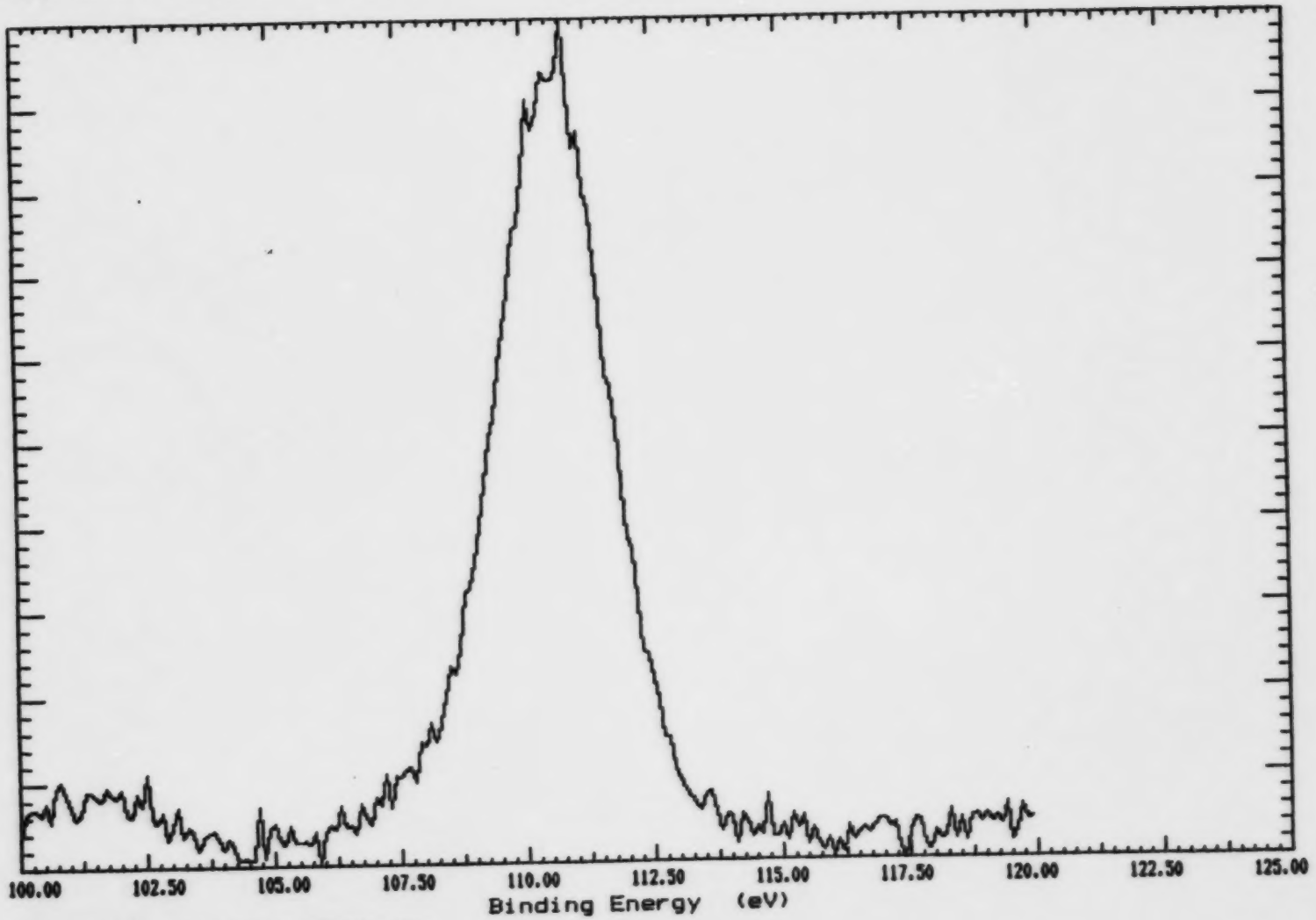
Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 11771
Step Size = 0.10 eV. 10 Scans of 200 channels at 50 ms per chan



GL-4-140B CM 15D/H MG300 NR
OPT SI2P+MECA
13H10 DEC 89

ASA28 Region 5 SI2P VG SCIENTIFIC

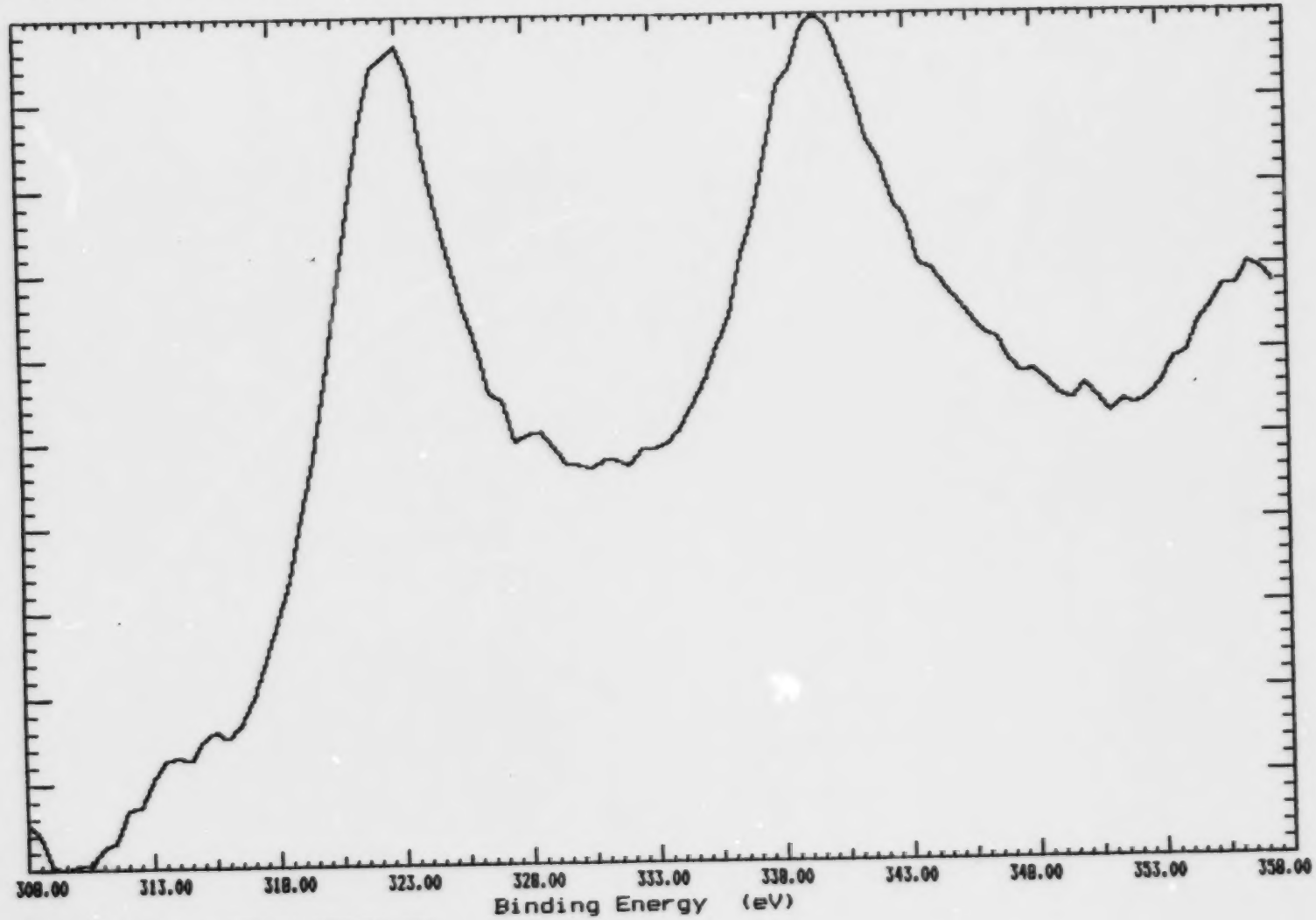
Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 2330
Step Size = 0.10 eV. 15 Scans of 200 channels at 50 ms per chan



GL-4-140B CM 15D/H MG300 NR
OPT SI2P+MECA
13H10 DEC 89

ASA28 Region 6 PT4D VG SCIENTIFIC

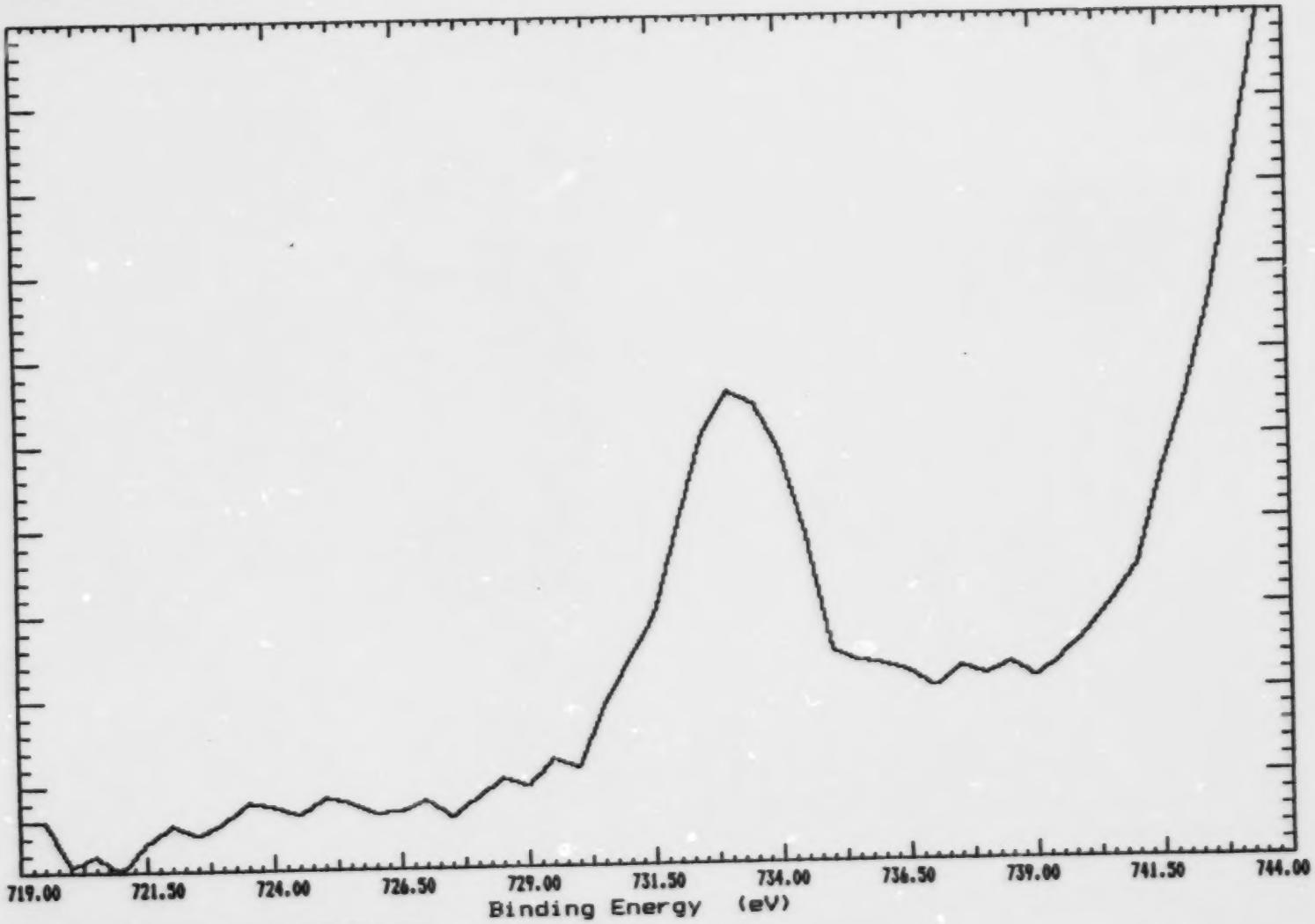
Mg XPS Analyser Energy = 50 eV Max Plotted Count Rate = 2372
Step Size = 0.50 eV. 290 Scans of 100 channels at 50 ms per chan



GL-4-140B CM 15D/H MG300 NR
OPT SI2P+MECA
13H10 DEC 89

ASA28 Region 7 CS3D VG SCIENTIFIC

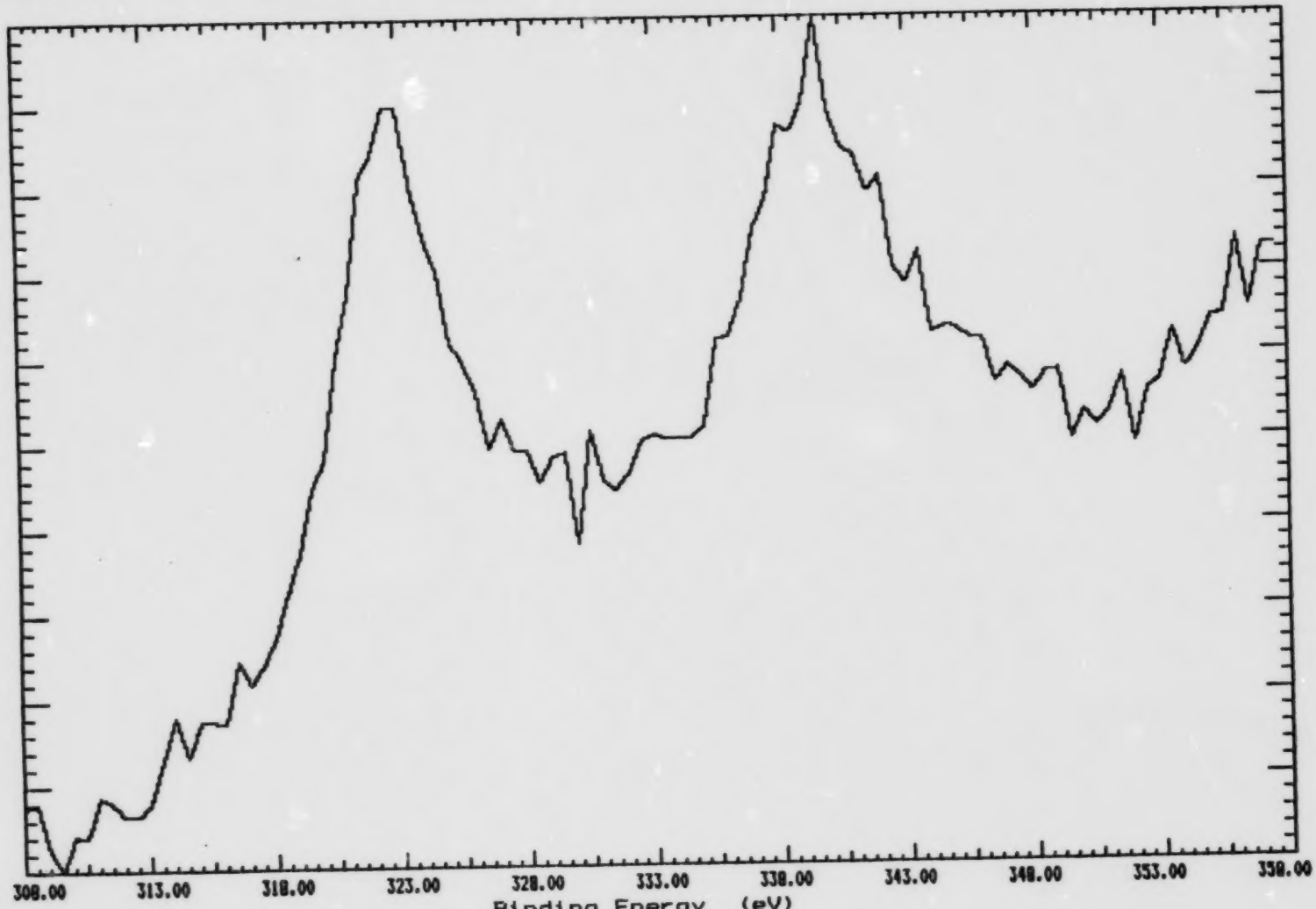
Mg XPS Analyser Energy = 50 eV Max Plotted Count Rate = 3560
Step Size = 0.50 eV. 200 Scans of 50 channels at 50 ms per chan



GL-4-140B CM 15D/H MG300 NR
OPT SI2P+MECA
13H10 DEC 89

ASA28 Region 8 PT4D VG SCIENTIFIC

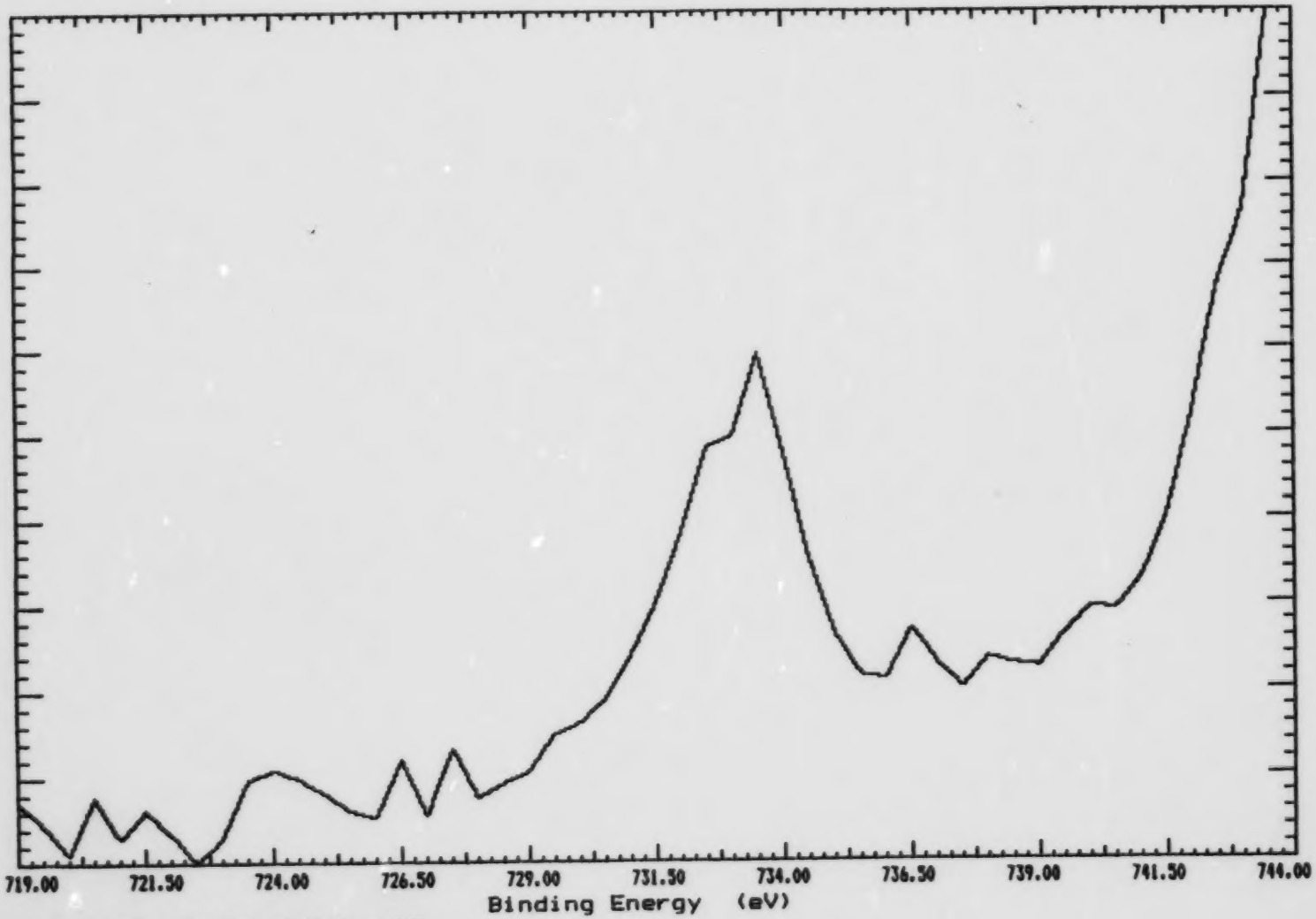
Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 564
Step Size = 0.50 eV. 200 Scans of 100 channels at 50 ms per chan



GL-4-140B CM 15D/H MG300 NR
OPT SI2P+MECA
13H10 DEC 89

ASA28 Region 9 CS3D VG SCIENTIFIC

Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 862
Step Size = 0.50 eV. 200 Scans of 50 channels at 50 ms per chan



GL-4-140B CM 15D/H MG300 NR
OPT 812P+MECA
13H10 DEC 89

Pt/HZSM-5(B)

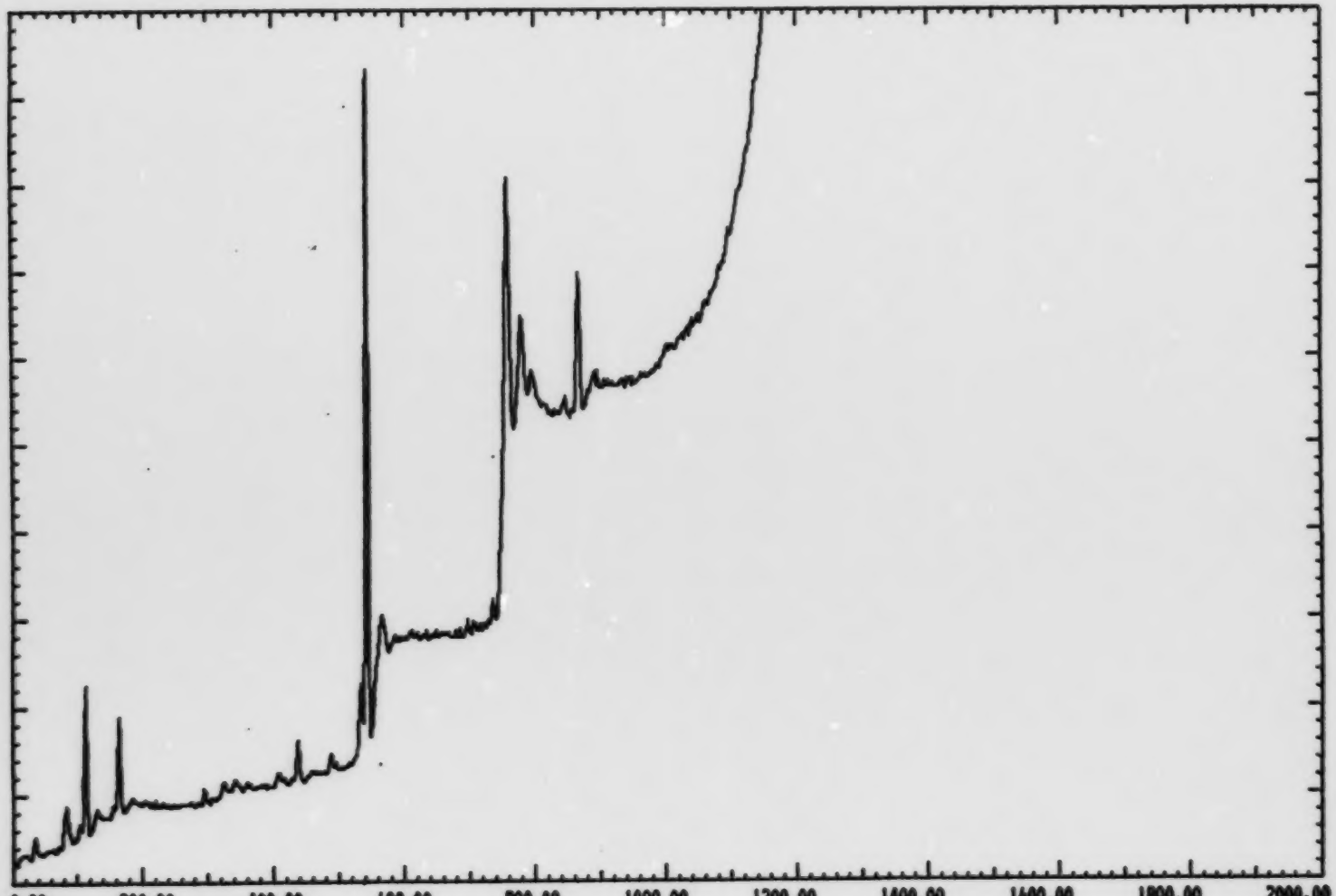
Sample No. 140B (2.53% Pt)

REDUCED

Prepared by ion-exchange

ASA27 Region 1 SURVEY VG SCIENTIFIC

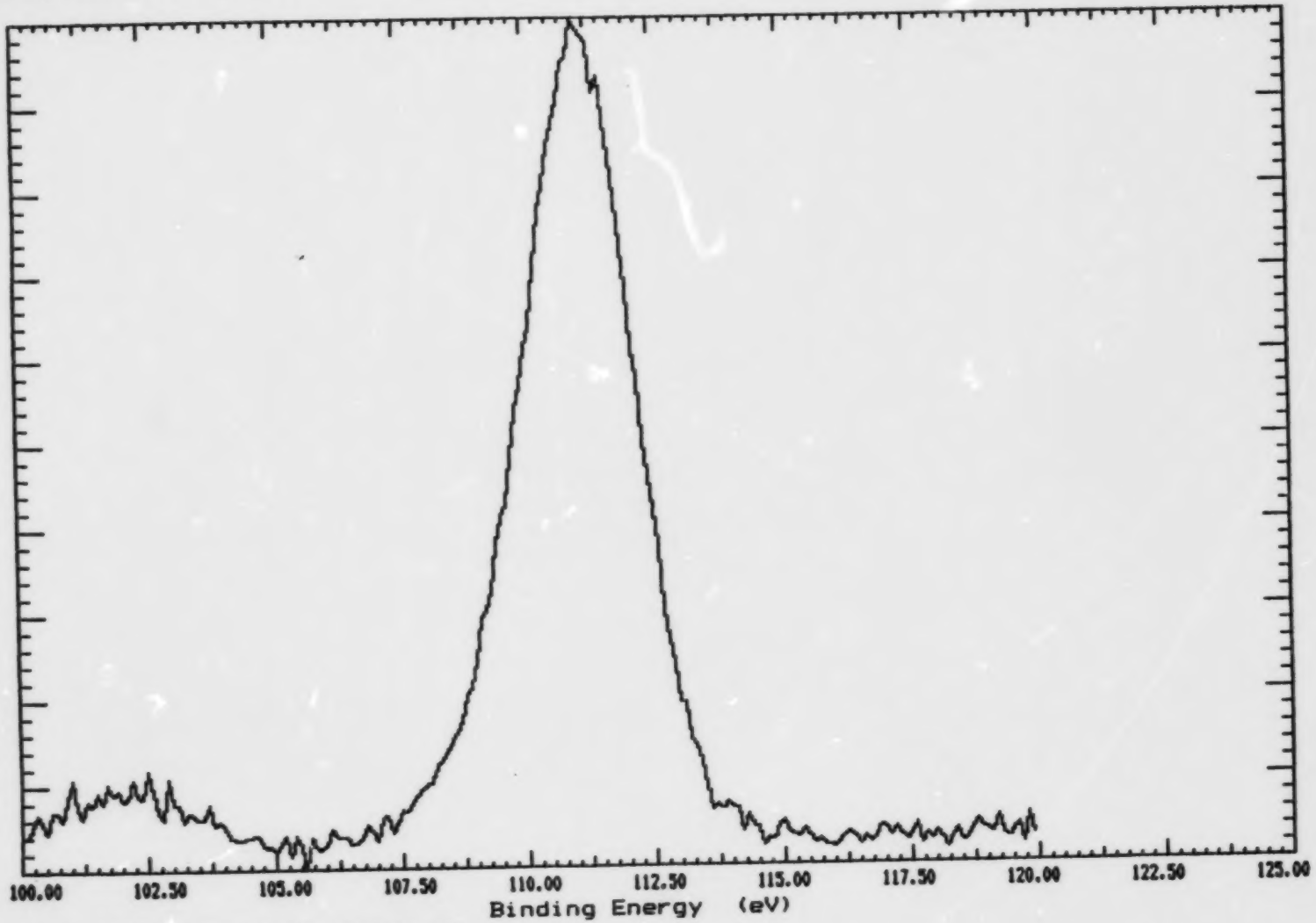
Mg XPS Analyser Energy = 50 eV Max Plotted Count Rate = 70394
Step Size = 1.00 eV. 7 Scans of 1150 channels at 50 ms per chan



GL-4-140B-R CM 15D/H MG300 NR
OPT SI2P+MECA
10H10 1 DEC 89

ASA27 Region 2 SI2P VG SCIENTIFIC

Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 2657
Step Size = 0.10 eV. 30 Scans of 200 channels at 50 ms per chan

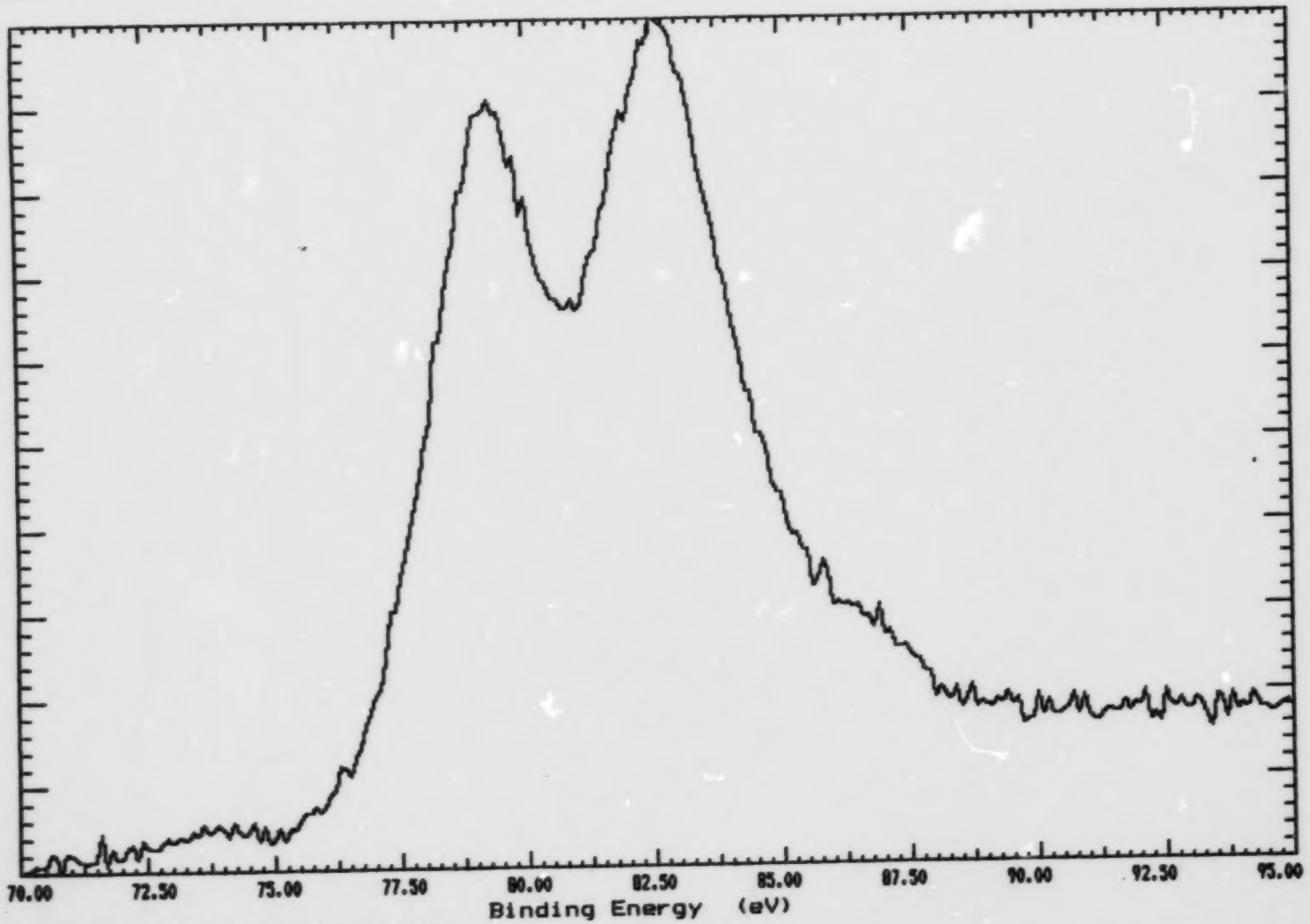


GL-4-140B-R CM 15D/H MG300 NR
OPT SI2P+MECA
10H10 1 DEC 89

ASA27 Region 3 ALPTCS

VG SCIENTIFIC

Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 682
Step Size = 0.10 eV. 348 Scans of 250 channels at 50 ms per chan

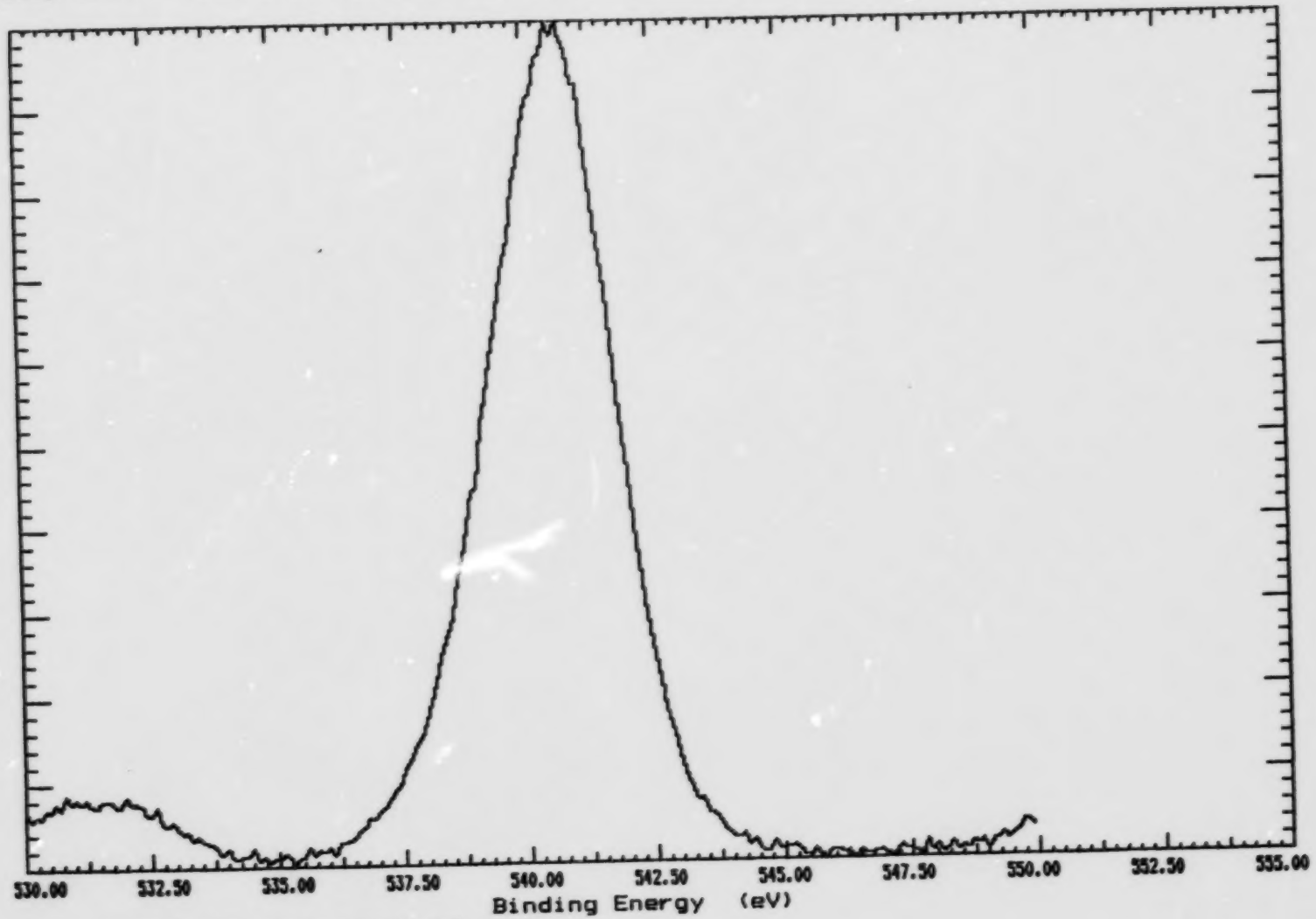


BL-4-140B-R CM 15D/H MG300 NR
OPT SI2P+MECA
10H10 1 DEC 89

ASA27 Region 4 O1S

VG SCIENTIFIC

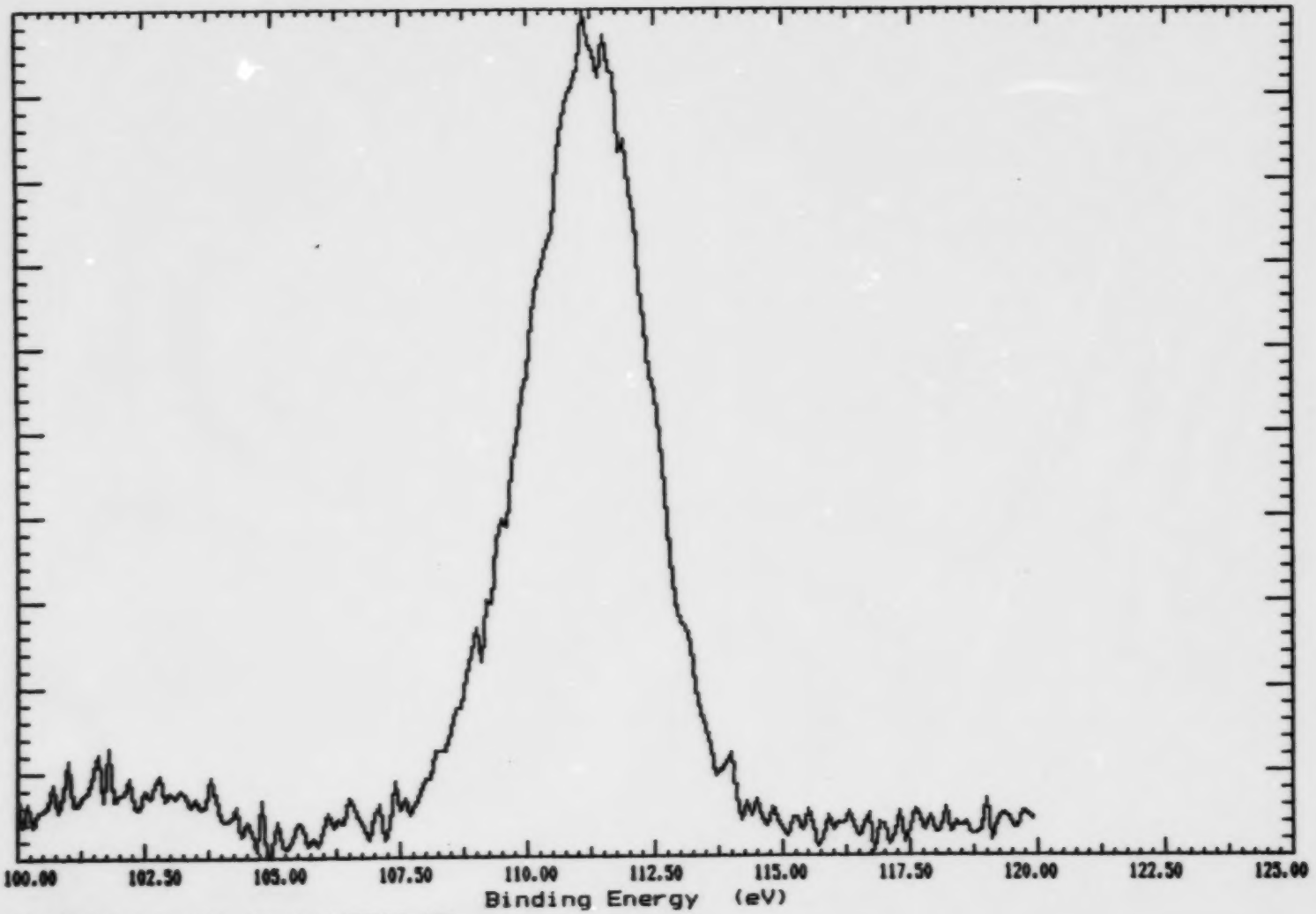
Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 13243
Step Size = 0.10 eV. 17 Scans of 200 channels at 50 ms per chan



GL-4-140B-R CM 15D/H MG300 NR
OPT SI2P+MECA
10H10 1 DEC 89

ASA27 Region 5 SI2P VG SCIENTIFIC

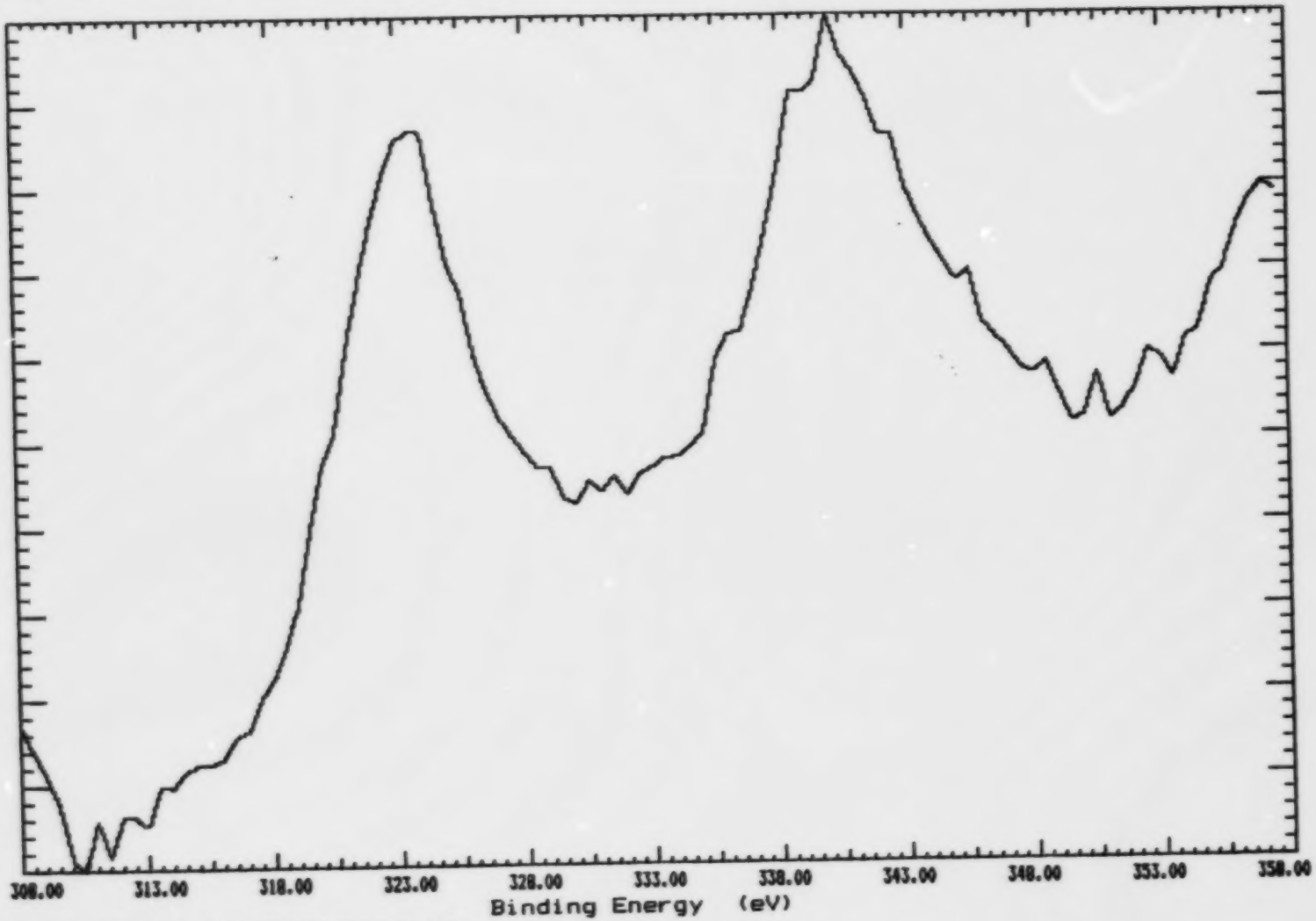
Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 2639
Step Size = 0.10 eV. 10 Scans of 200 channels at 50 ms per chan



GL-4-140B-R CM 15D/H MG300 NR
OPT SI2P+MECA
10H10 1 DEC 89

ASA27 Region 6 PT4D VG SCIENTIFIC

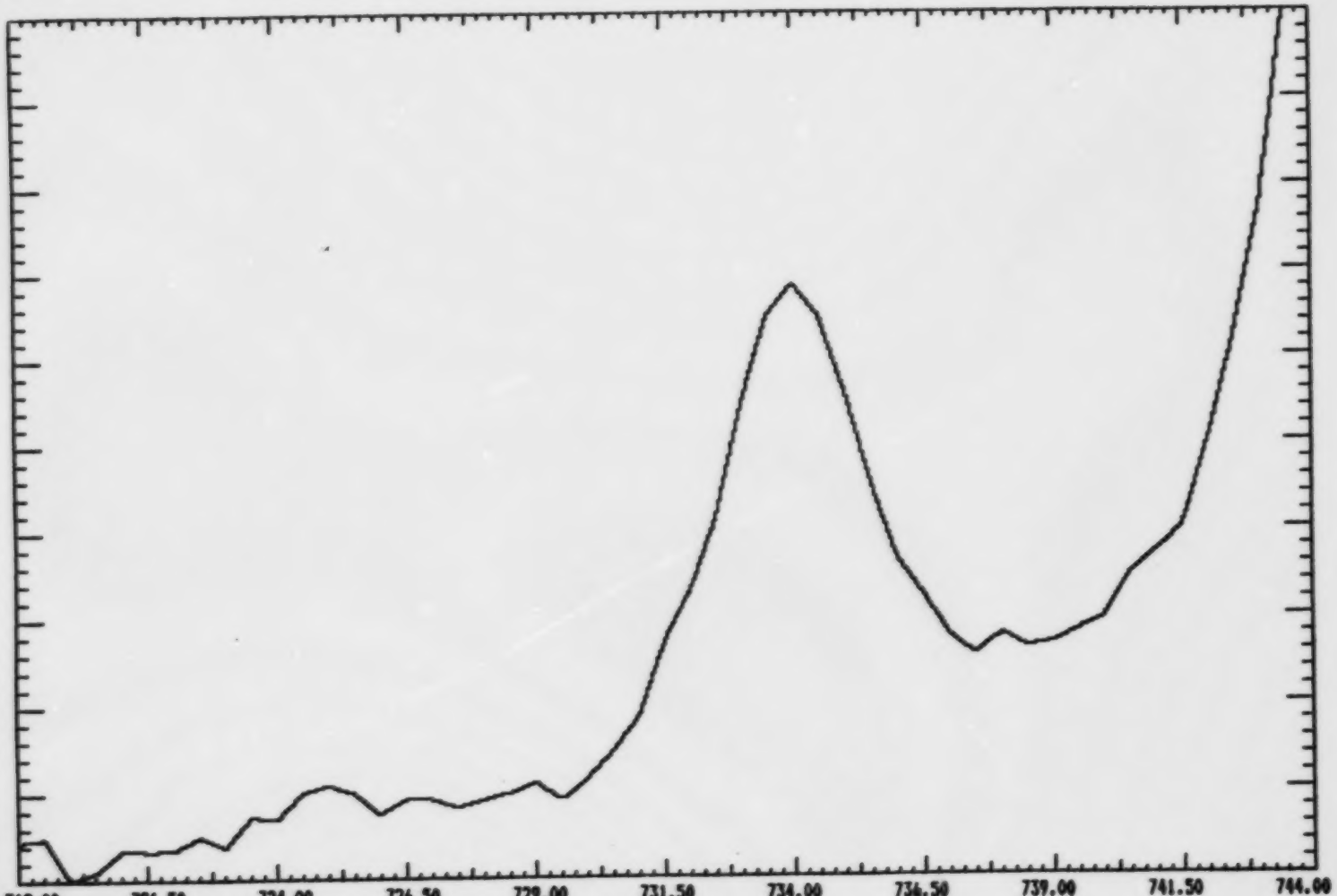
Mg XPS Analyser Energy = 50 eV Max Plotted Count Rate = 1733
Step Size = 0.50 eV. 178 Scans of 100 channels at 50 ms per chan



GL-4-140B-R CM 15D/H MG300 NR
OPT SI2P+MECA
10H10 1 DEC 89

ASA27 Region 7 CS3D VG SCIENTIFIC

Mg XPS Analyser Energy = 50 eV Max Plotted Count Rate = 3224
Step Size = 0.50 eV. 200 Scans of 50 channels at 50 ms per chan



GL-4-140B-R CM 15D/H MG300 NR
OPT SI2P+MECA
10H10 1 DEC 89

Pt/HZSM-5(B)

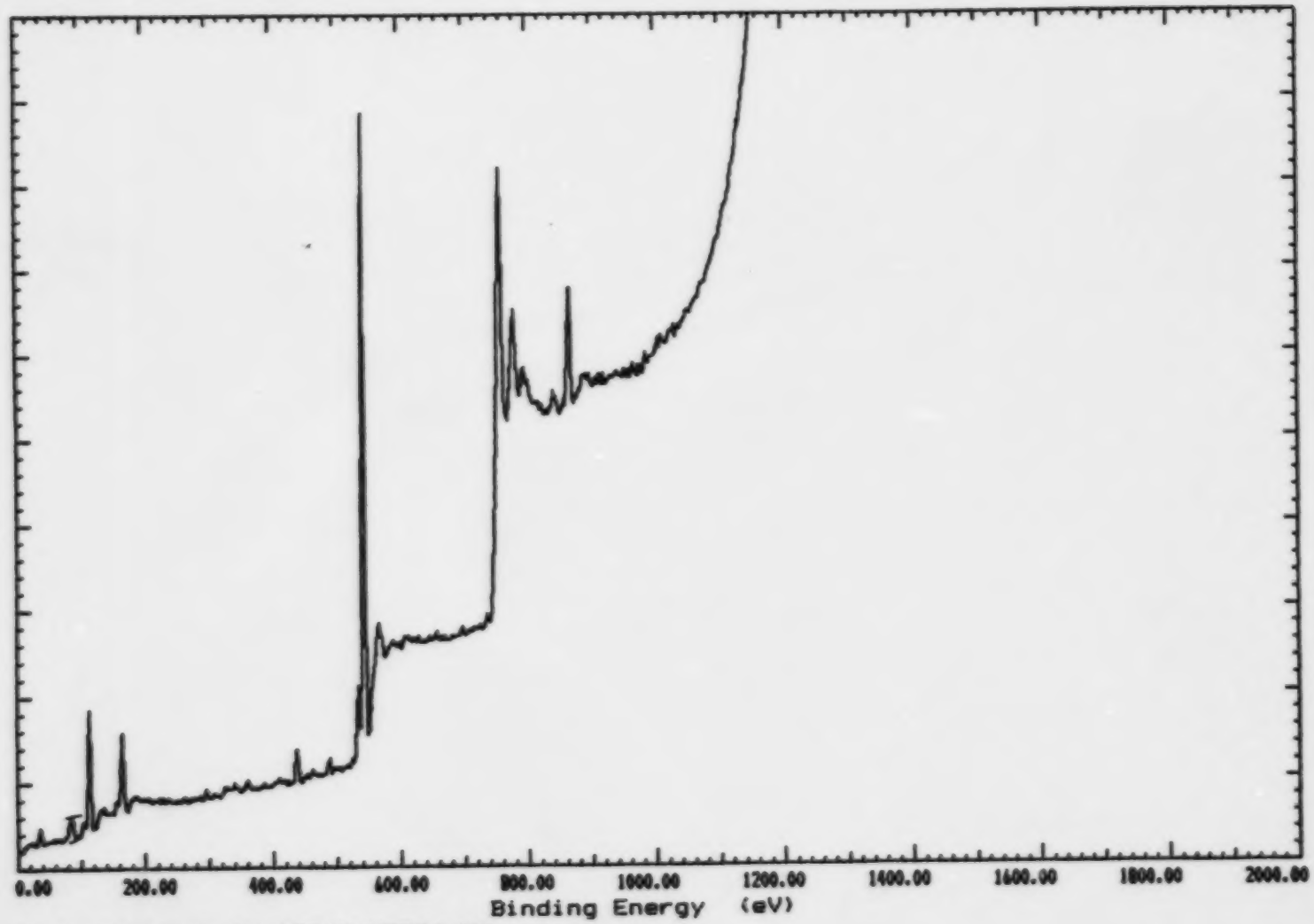
Sample No. 140B (2.53% Pt)

REDUCED AND GROUND

Prepared by ion-exchange

ASA19 Region 1 SURVEY VG SCIENTIFIC

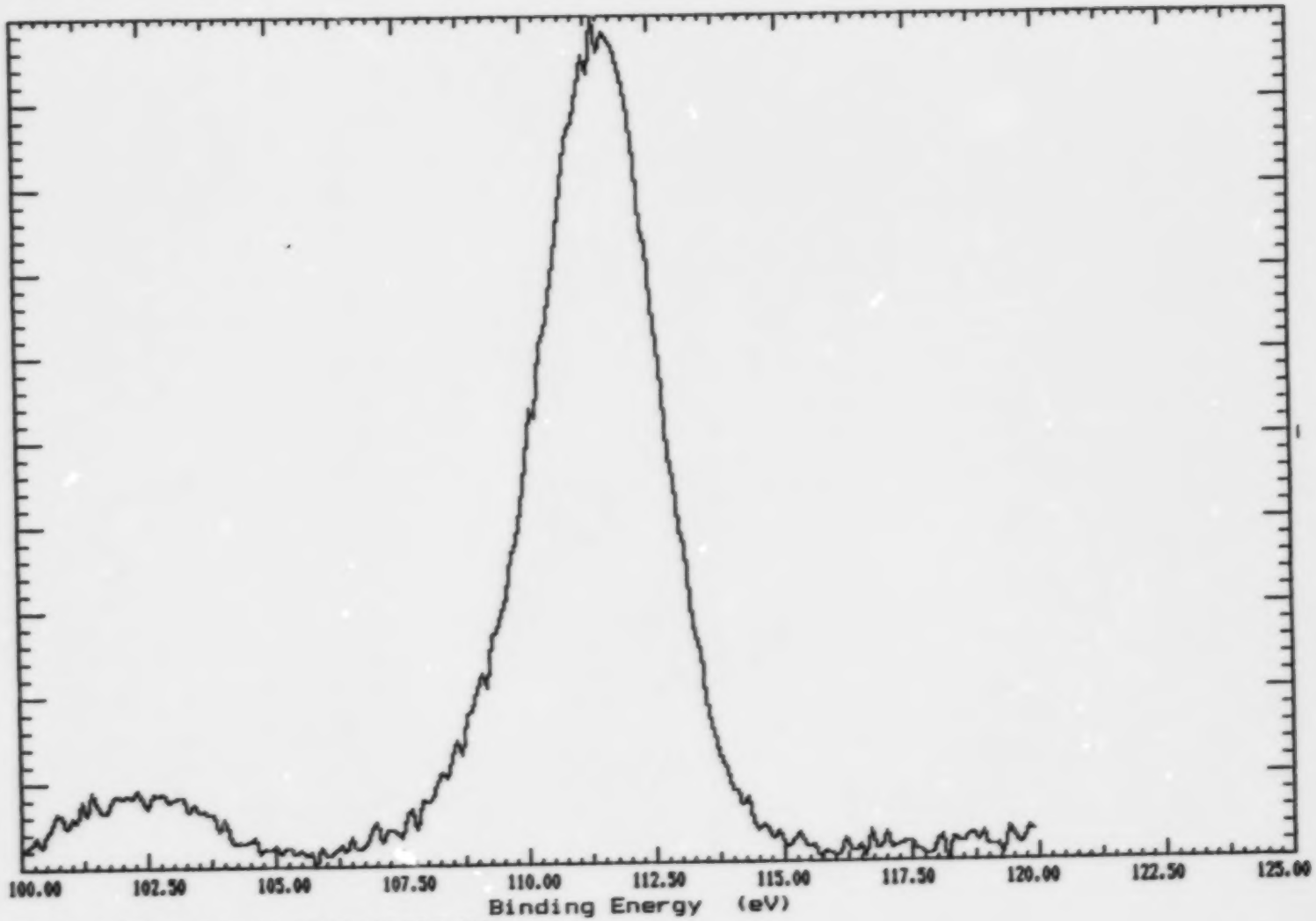
Mg XPS Analyser Energy = 50 eV Max Plotted Count Rate = 69362
Step Size = 1.00 eV. 7 Scans of 1150 channels at 50 ms per chan



GL-4-140B-R-B CM 15D/H MG300 NR
OPT SI2P+MECA
8H50 30 NOV 89

ASA19 Region 2 SI2P VG SCIENTIFIC

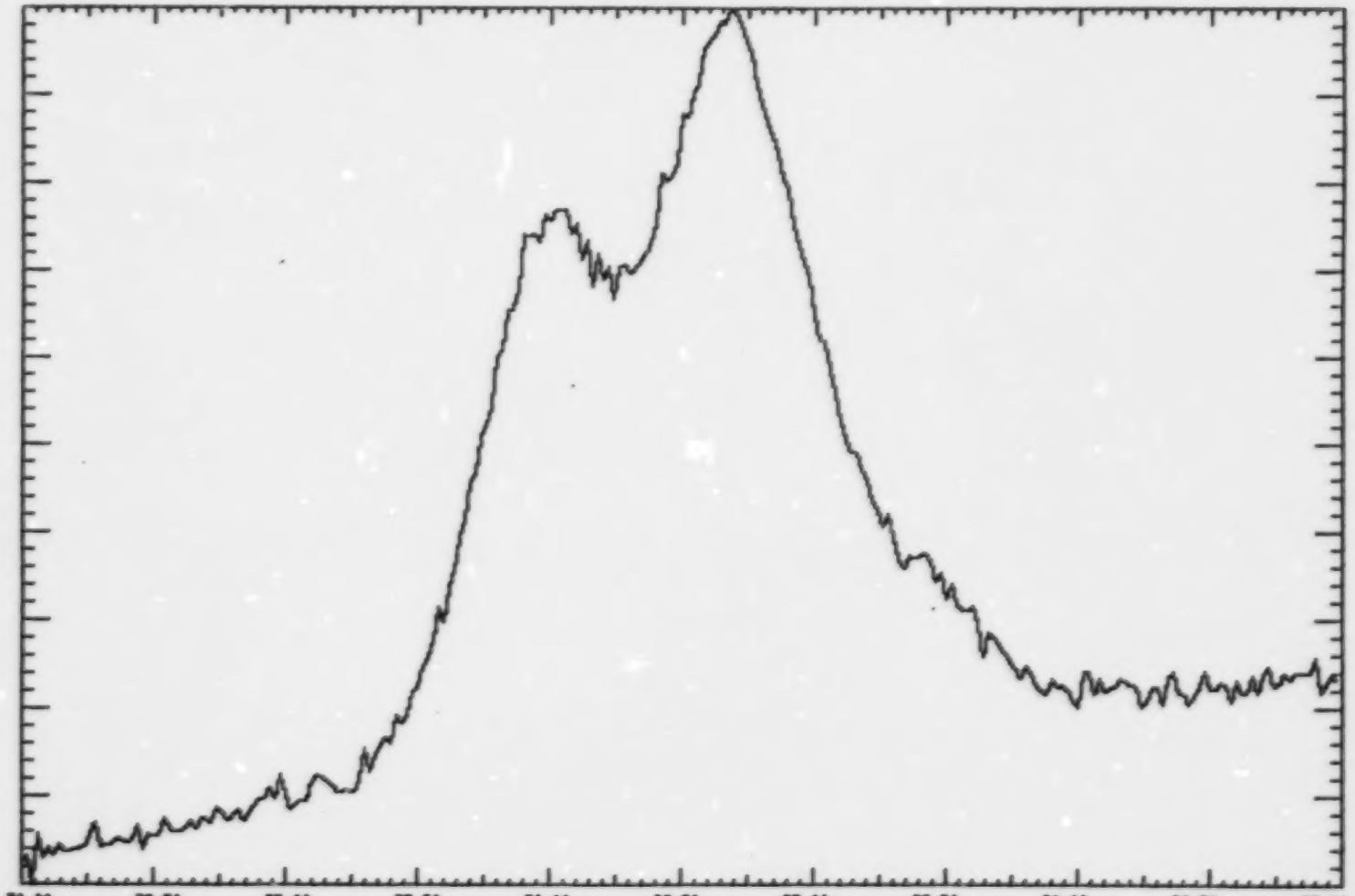
Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 2338
Step Size = 0.10 eV. 40 Scans of 200 channels at 50 ms per chan



GL-4-140B-R-B CM 15D/H MG300 NR
OPT SI2P+MECA
BH50 30 NOV 89

ASA19 Region 3 ALPTCS VG SCIENTIFIC

Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 388
Step Size = 0.10 eV. 700 Scans of 250 channels at 50 ms per chan

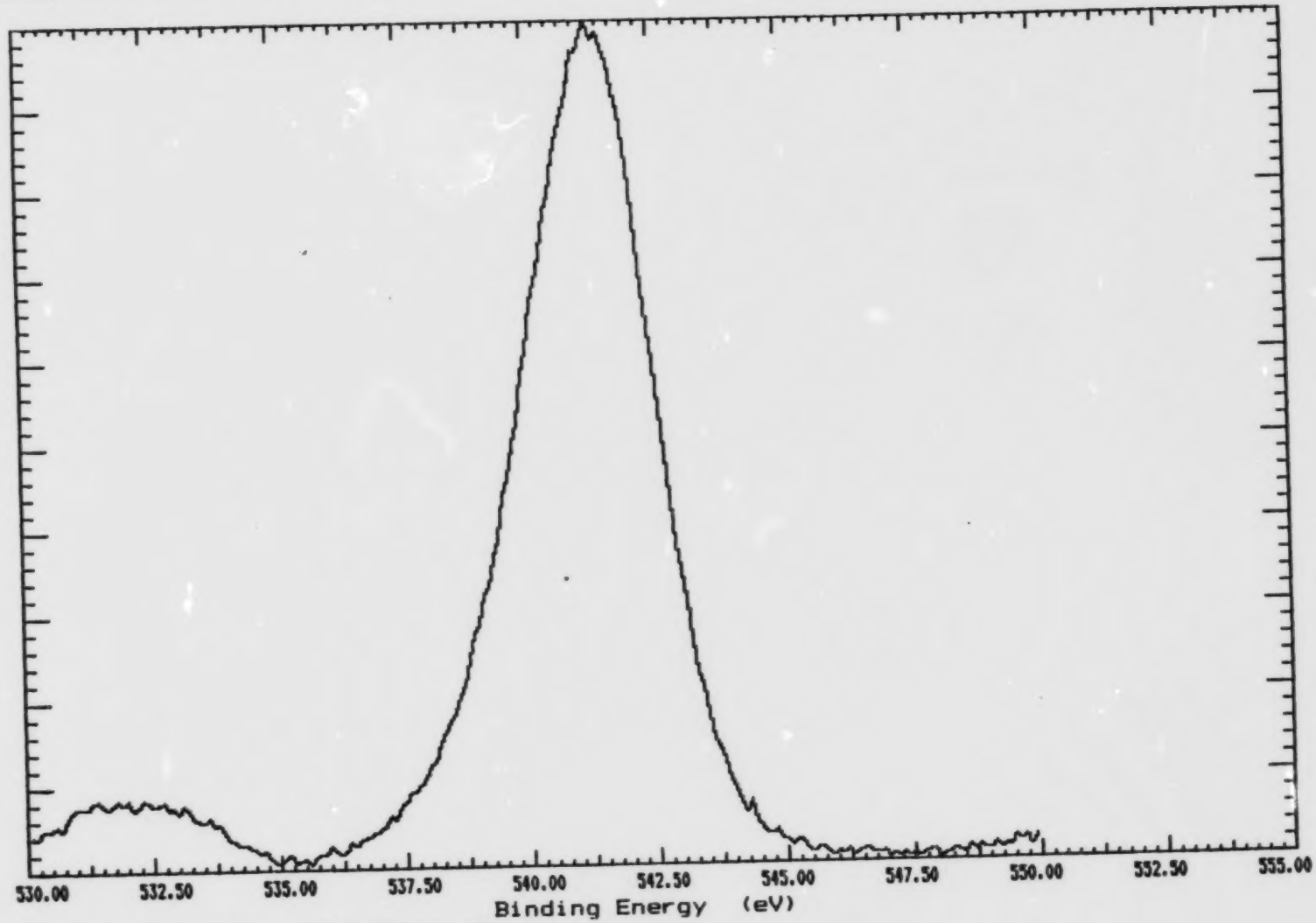


GL-4-140B-R-B CM 15D/H MG300 NR
OPT SI2P+MECA
BH50 30 NOV 89

ASA19 Region 4 01S

VG SCIENTIFIC

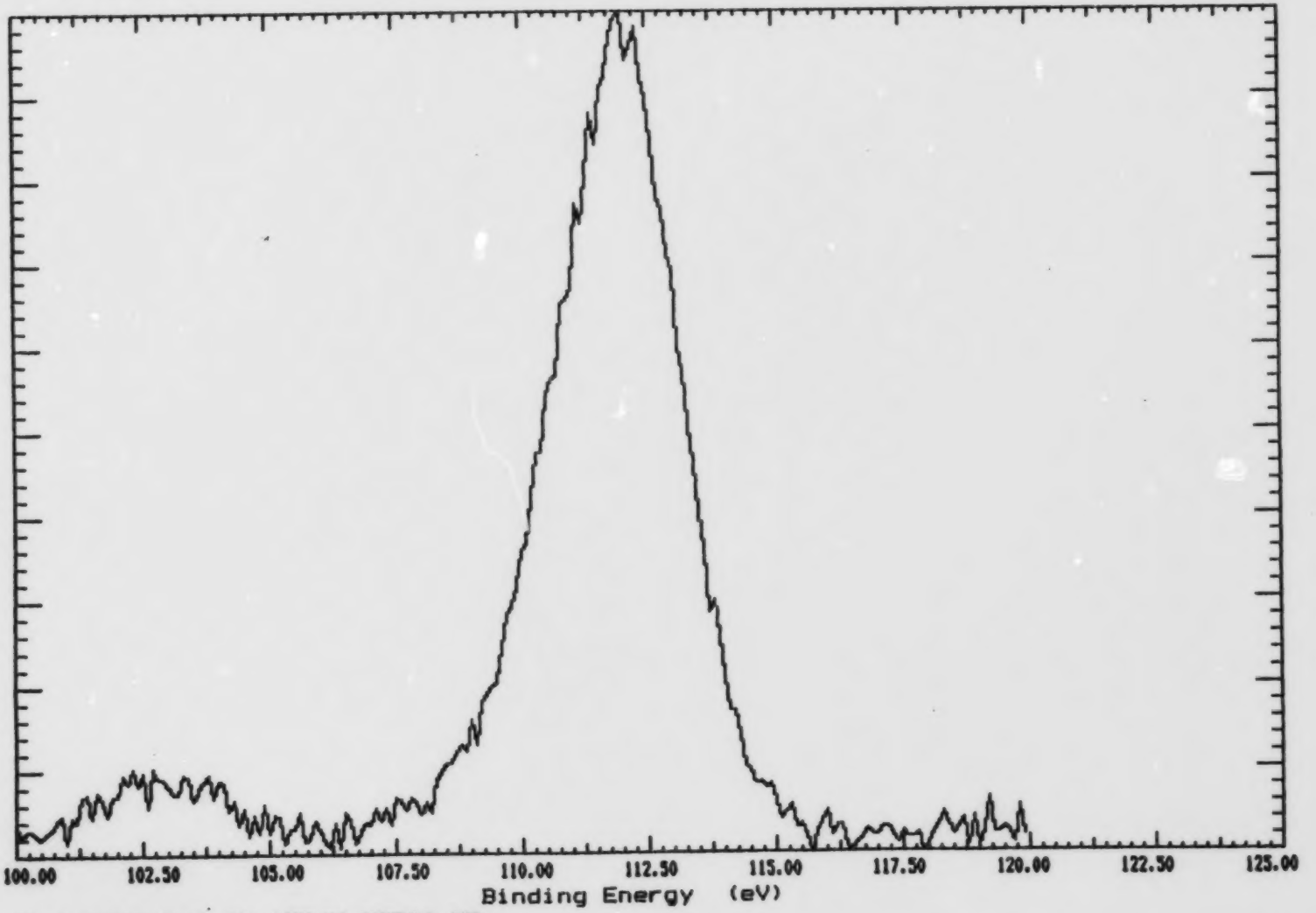
Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 12245
Step Size = 0.10 eV. 20 Scans of 200 channels at 50 ms per chan



GL-4-140B-R-B CM 15D/H MG300 NR
OPT SI2P+MECA
8H50 30 NOV 89

ASA19 Region 5 SI2P VG SCIENTIFIC

Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 2477
Step Size = 0.10 eV. 15 Scans of 200 channels at 50 ms per chan

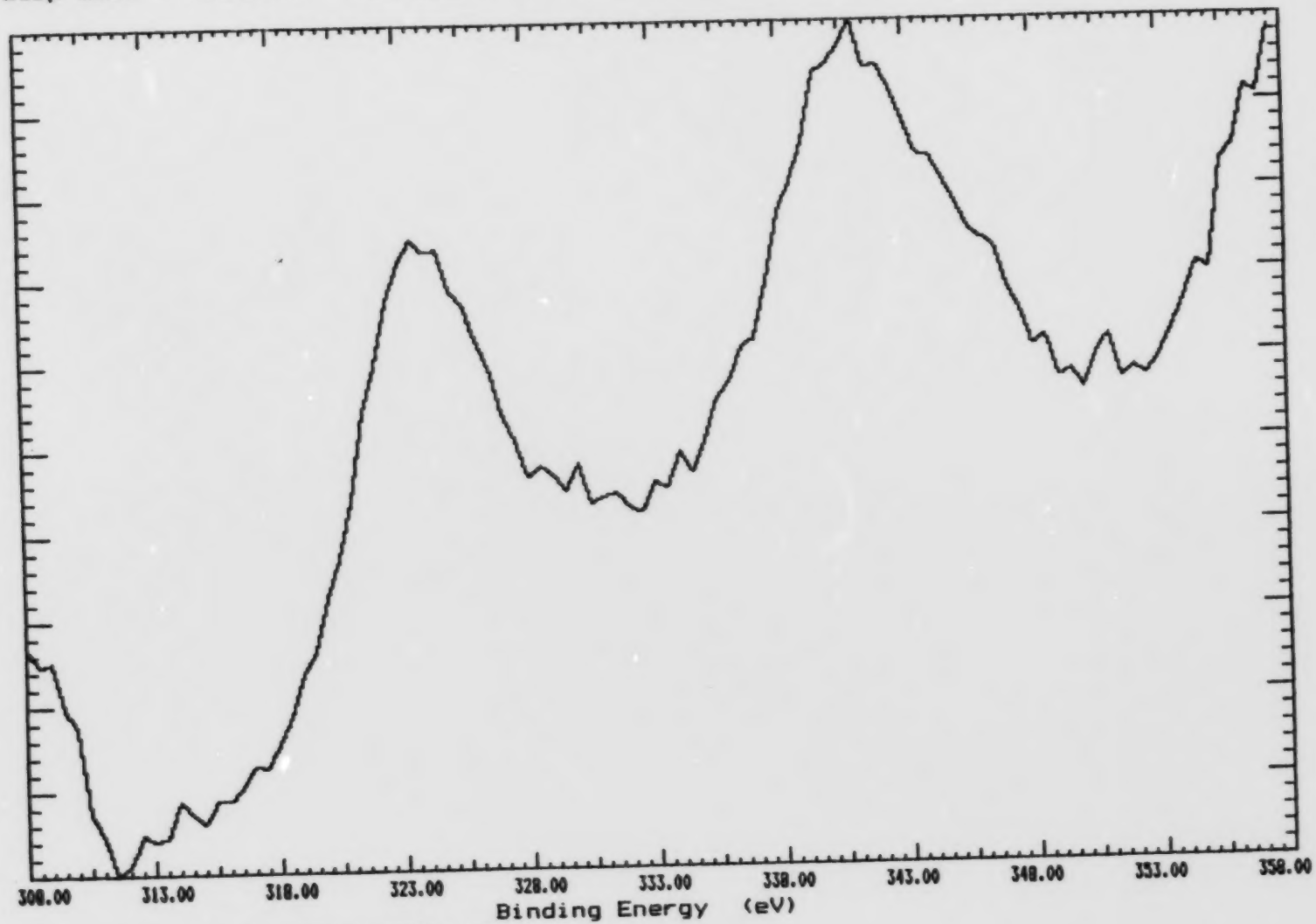


GL-4-140B-R-B CM 15D/H MG300 NR
OPT SI2P+MECA
8H50 30 NOV 89

ASA19 Region 6 PT4D

VG SCIENTIFIC

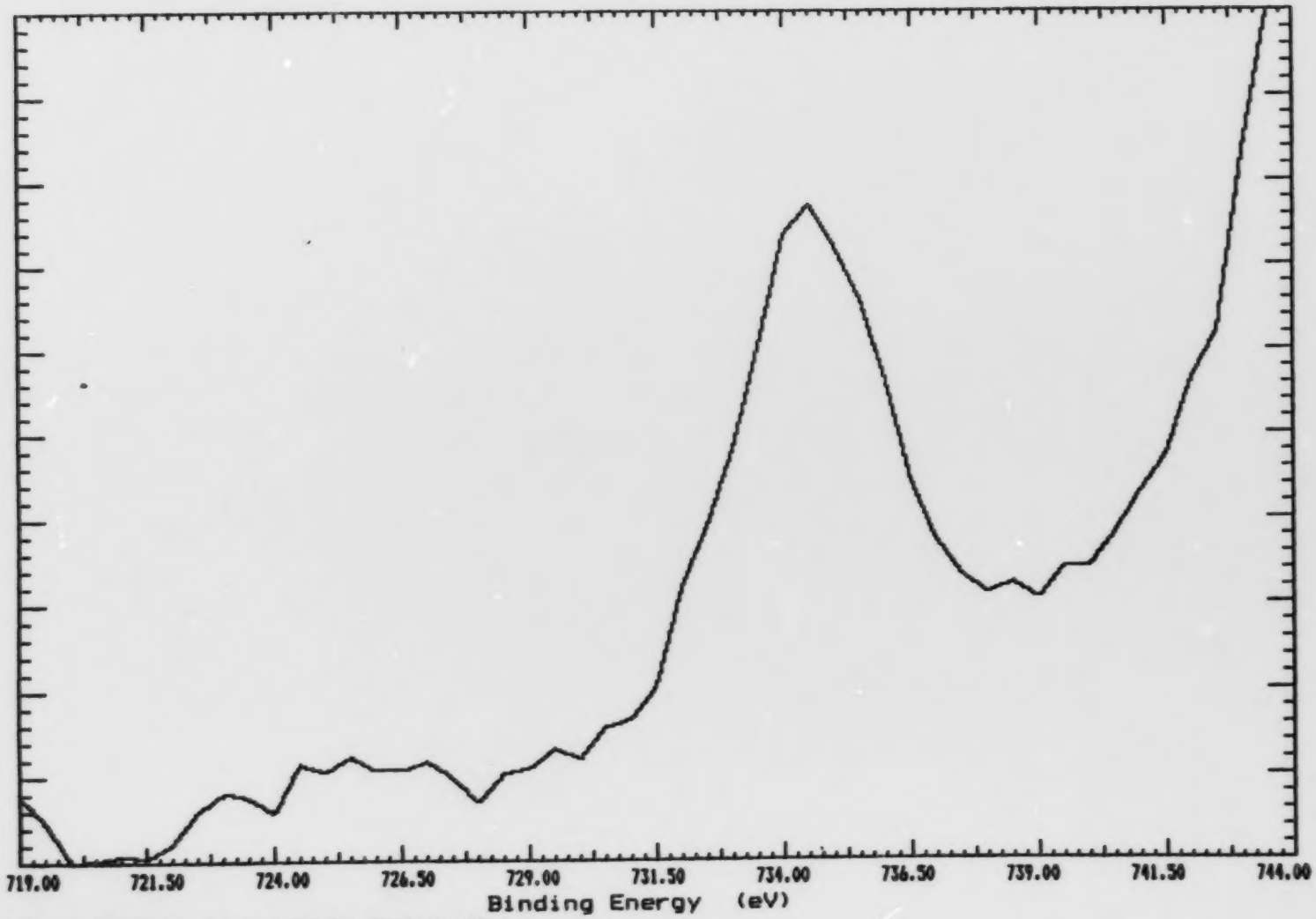
Mg XPS Analyser Energy = 50 eV Max Plotted Count Rate = 970
Step Size = 0.50 eV. 413 Scans of 100 channels at 50 ms per chan



GL-4-140B-R-B CM 15D/H MG300 NR
OPT SI2P+MECA
8H50 30 NOV 89

ASA19 Region 7 CS3D VG SCIENTIFIC

Mg XPS Analyser Energy = 50 eV Max Plotted Count Rate = 2642
Step Size = 0.50 eV. 200 Scans of 50 channels at 50 ms per chan



GL-4-140B-R-B CM 15D/H MG300 NR
OPT 8I2P+MECA
8H50 30 NOV 89

Pt/Alumina

Sample No. 185A (1.85% Pt)

Pt/Alumina

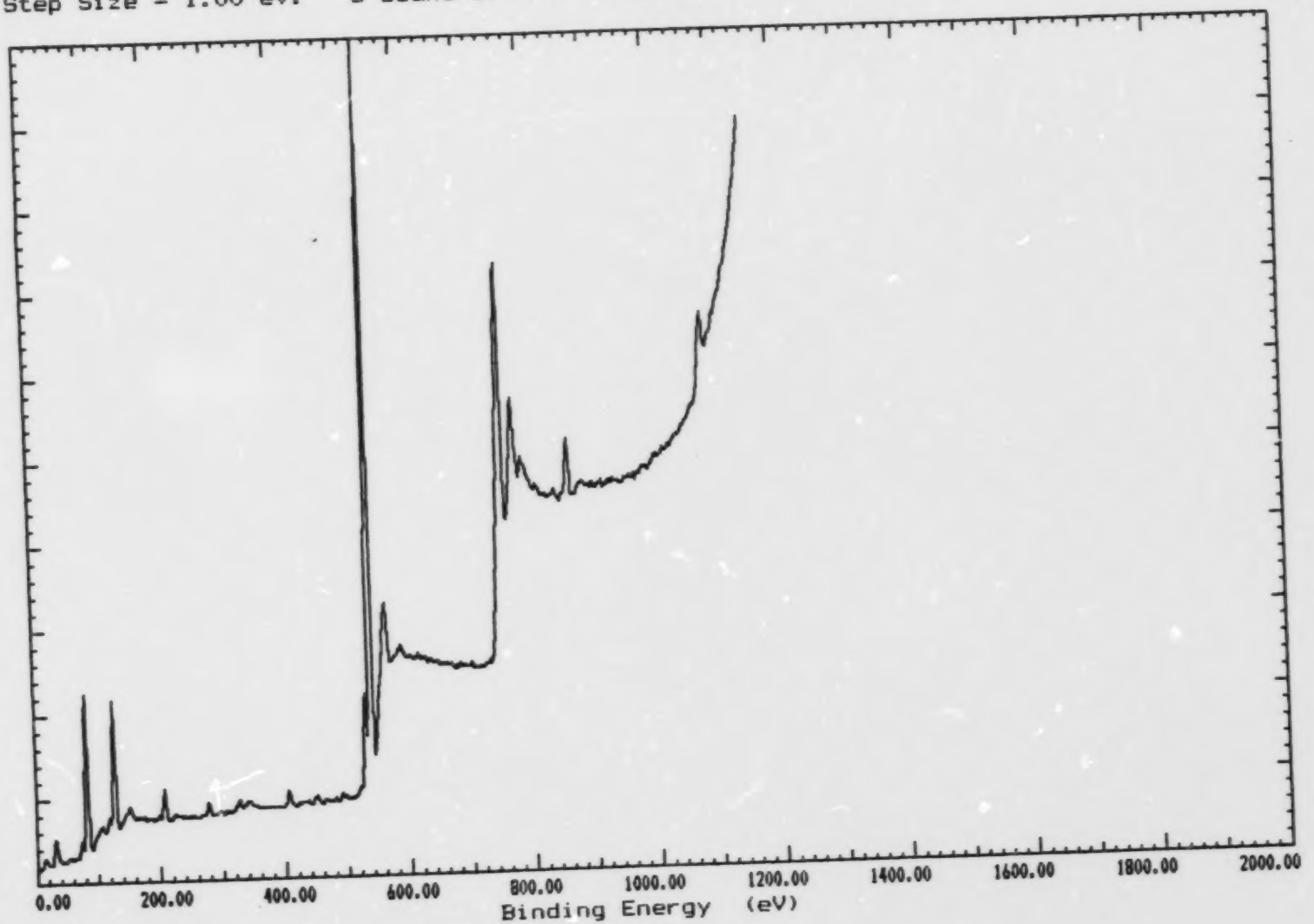
Sample No. 185A (1.85% Pt)

CALCINED AND GROUND

ASA41 Region 1 SURVEY

VG SCIENTIFIC

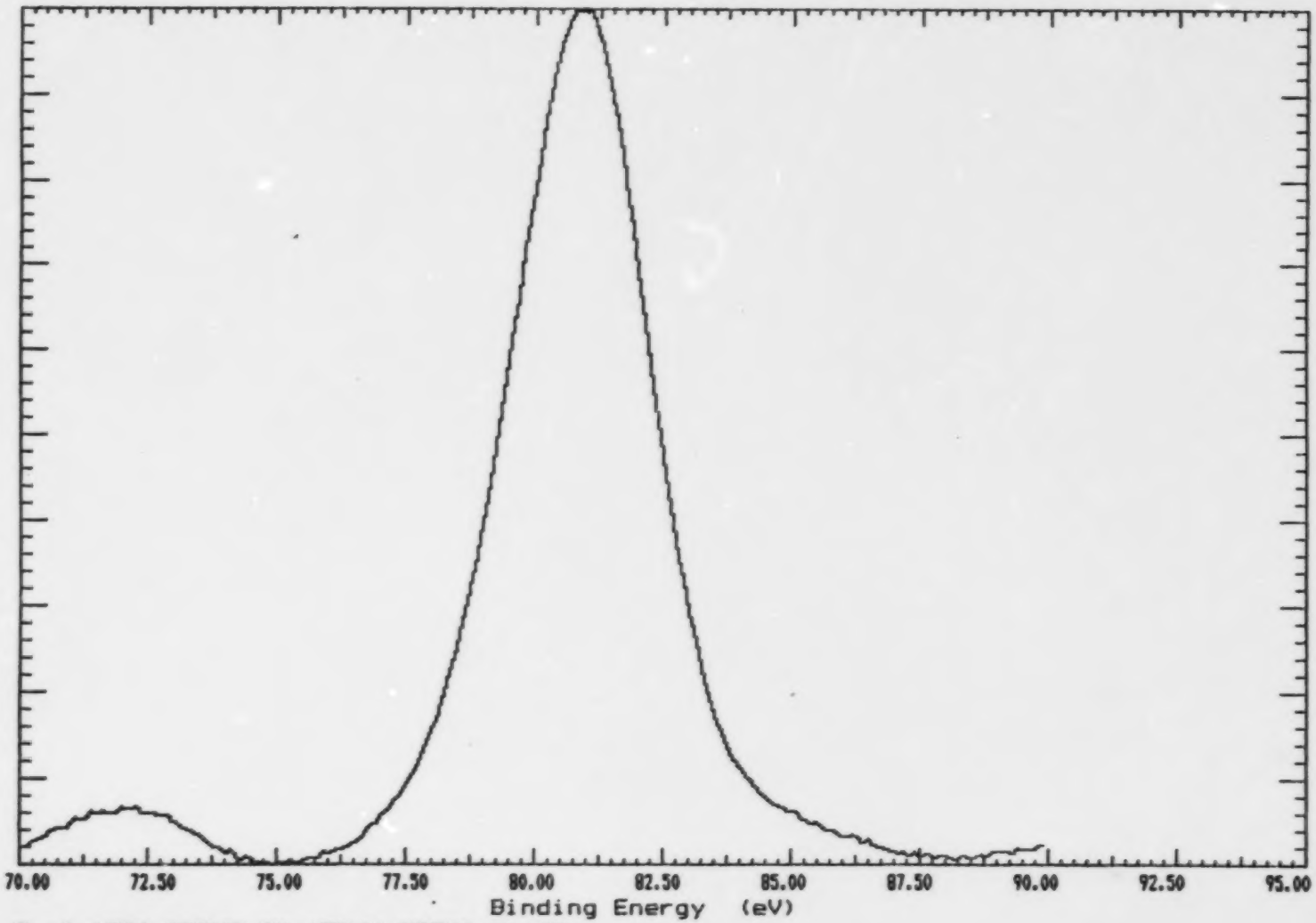
Mg XPS Analyser Energy = 50 eV Max Plotted Count Rate = 158919
Step Size = 1.00 eV. 5 Scans of 1150 channels at 50 ms per chan



GL-4-185A BROYE CM 15D/H MG300 C1 NR
OPT AL2P+MECA V=6*10-8
11H20 2 AVRIL 90

ASA41 Region 2 AL2P VG SCIENTIFIC

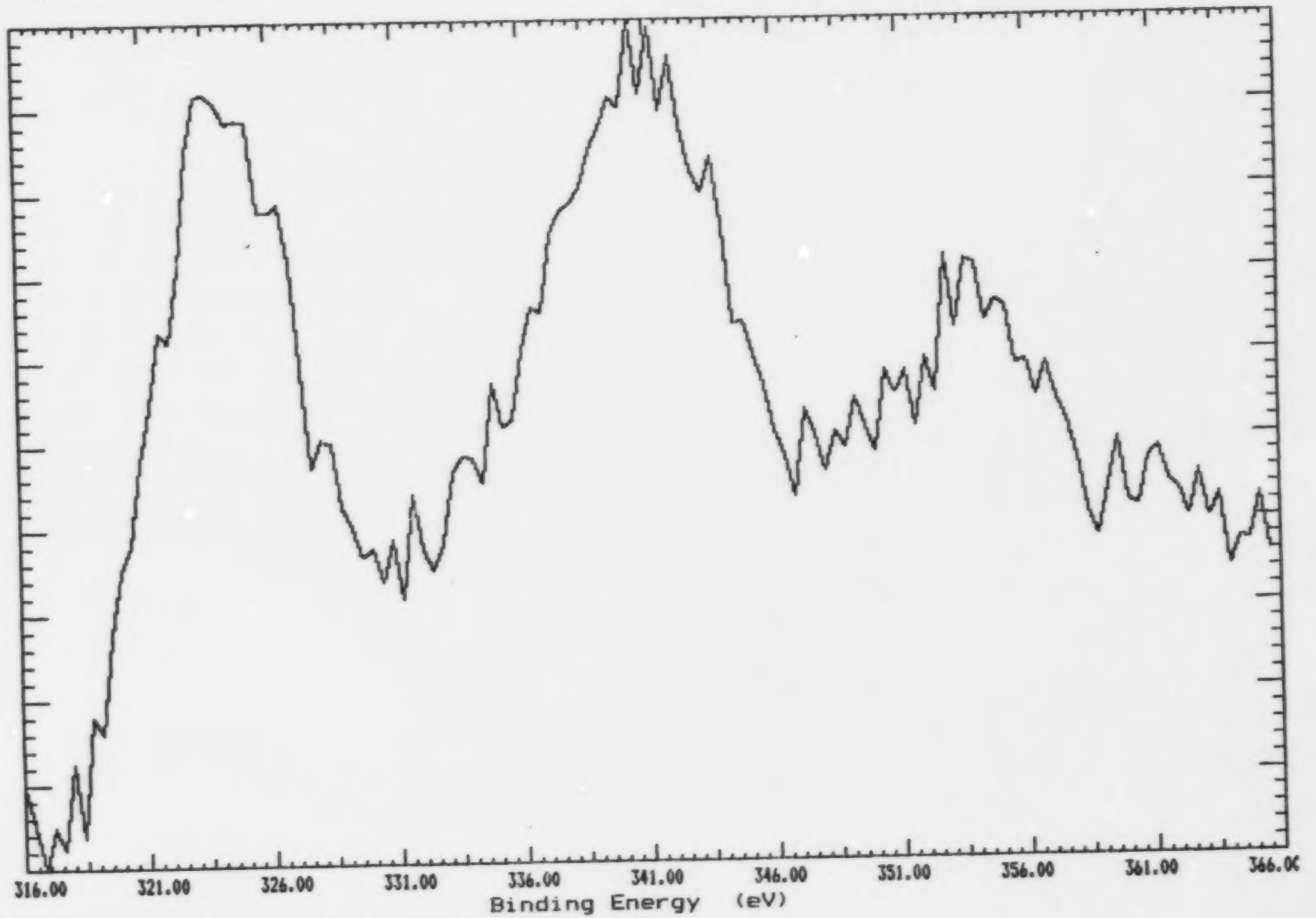
Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 6620
Step Size = 0.10 eV. 200 Scans of 200 channels at 50 ms per chan



GL-4-185A BROYE CM 15D/H MG300 C1 NR
OPT AL2P+MECA V=6*10-8
11H20 2 AVRIL 90

ASA41 Region 3 PT4D VG SCIENTIFIC

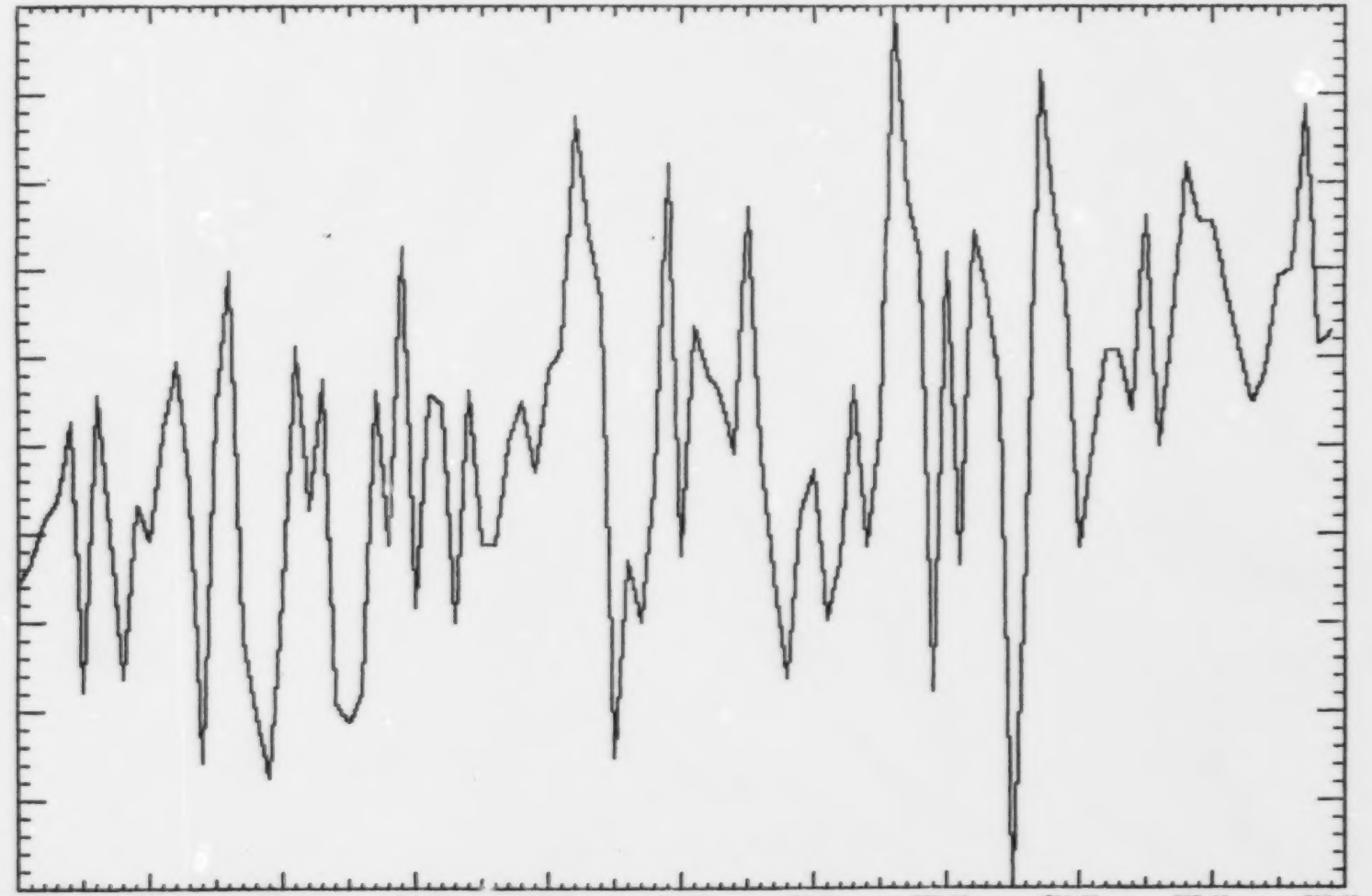
Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 380
Step Size = 0.40 eV. 280 Scans of 125 channels at 50 ms per chan



GL-4-185A BROYE CM 15D/H MG300 C1 NR
OPT AL2P+MECA V=6*10-8
11H20 2 AVRIL 90

ASA41 Region 4 C1S VG SCIENTIFIC

Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 447
Step Size = 0.20 eV. 10 Scans of 100 channels at 50 ms per chan

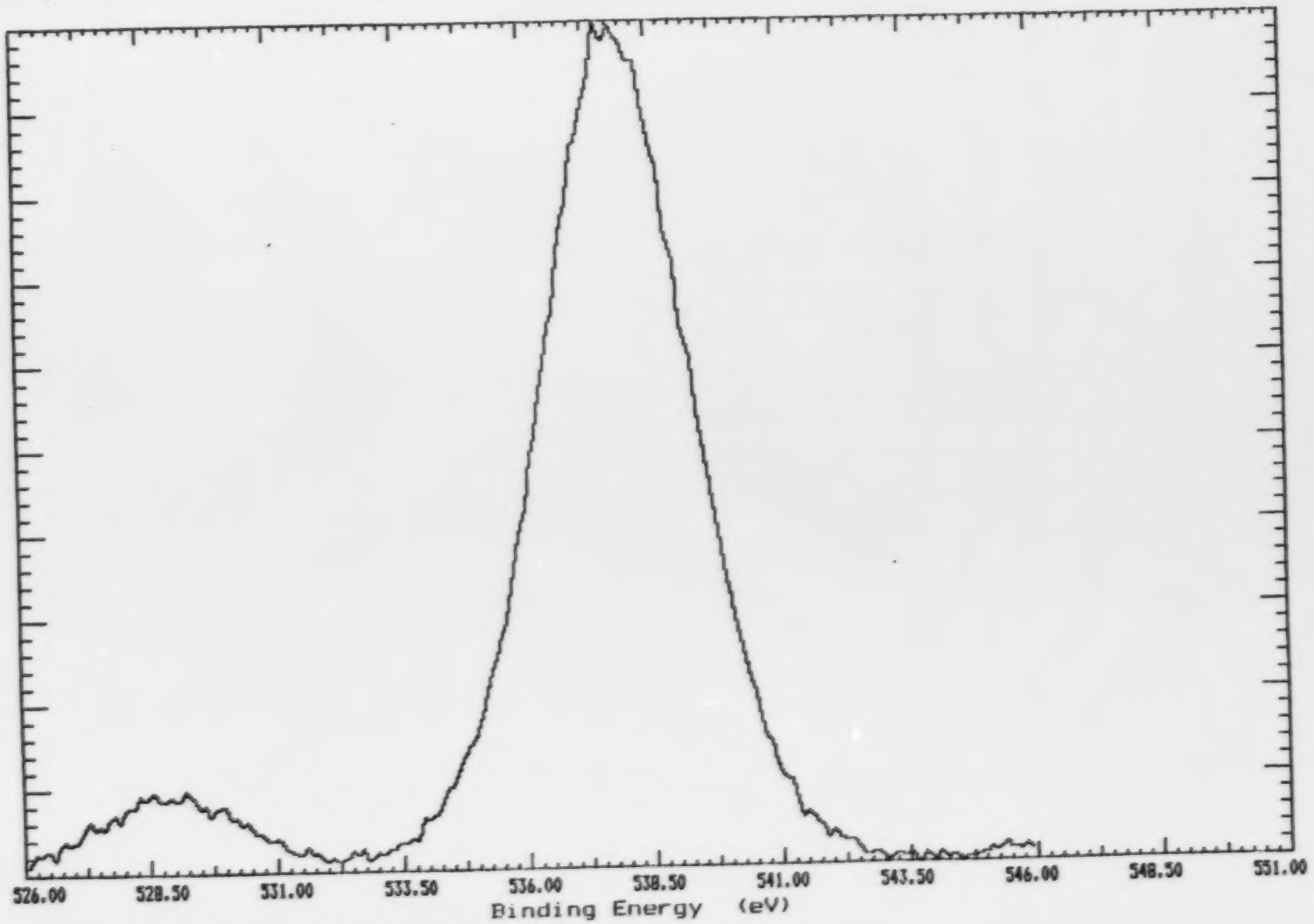


GL-4-185A BROYE CM 15D/H MG300 C1 NR
OPT AL2P+MECA V=6*10-8
11H20 2 AVRIL 90

ASA41 Region 5 O1S

VG SCIENTIFIC

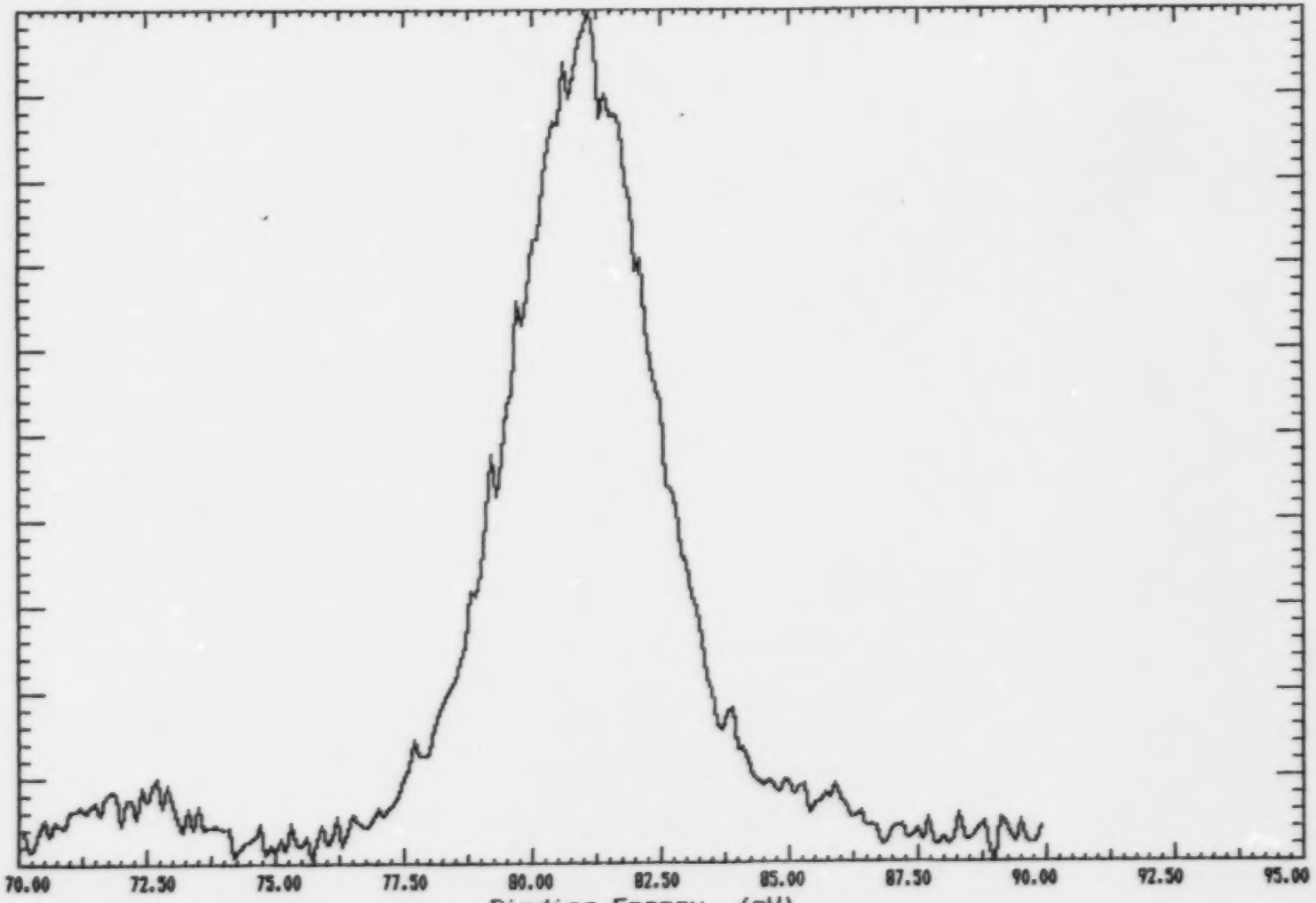
Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 33745
Step Size = 0.10 eV. 4 Scans of 200 channels at 50 ms per chan



GL-4-185A BROYE CM 15D/H MG300 C1 NR
OPT AL2P+MECA V=6*10-8
11H20 2 AVRIL 90

ASA41 Region 6 AL2P VG SCIENTIFIC

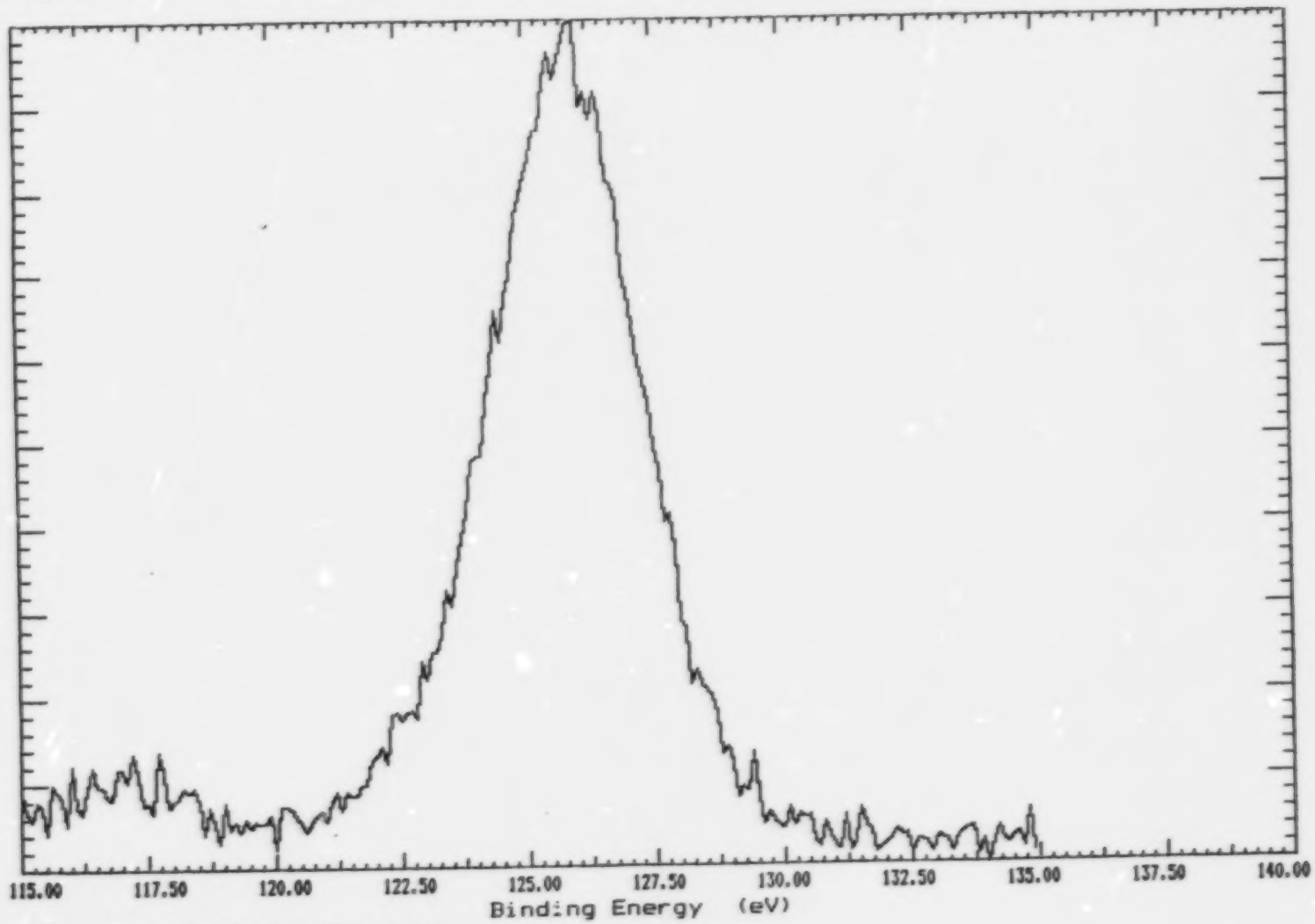
Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 6905
Step Size = 0.10 eV. 4 Scans of 200 channels at 50 ms per chan



GL-4-185A BROYE CM 15D/H MG300 C1 NR
OPT AL2P+MECA V=6*10-8
11H20 2 AVRIL 90

ASA41A Region 1 AL2S VG SCIENTIFIC

Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 5995
Step Size = 0.10 eV. 5 Scans of 200 channels at 50 ms per chan



IDEM ASA42 SAUF REPRISE AL2S
MMES CONDS, SOURCE PAS ARRETEE
2 AVRIL 90 13H10

Pt/Alumina

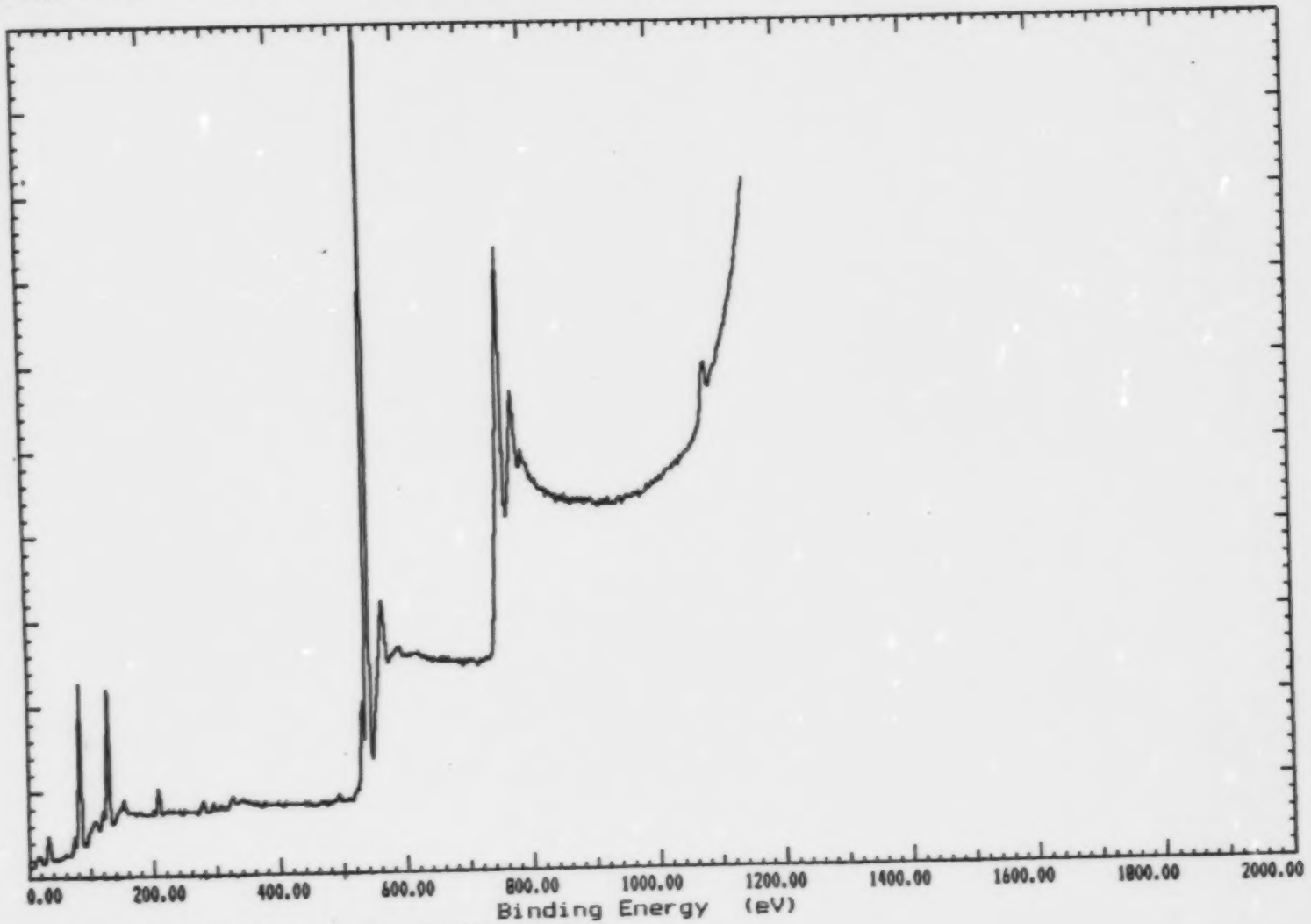
Sample No. 185A (1.85% Pt)

REDUCED

ASA52 Region 1 SURVEY

VG SCIENTIFIC

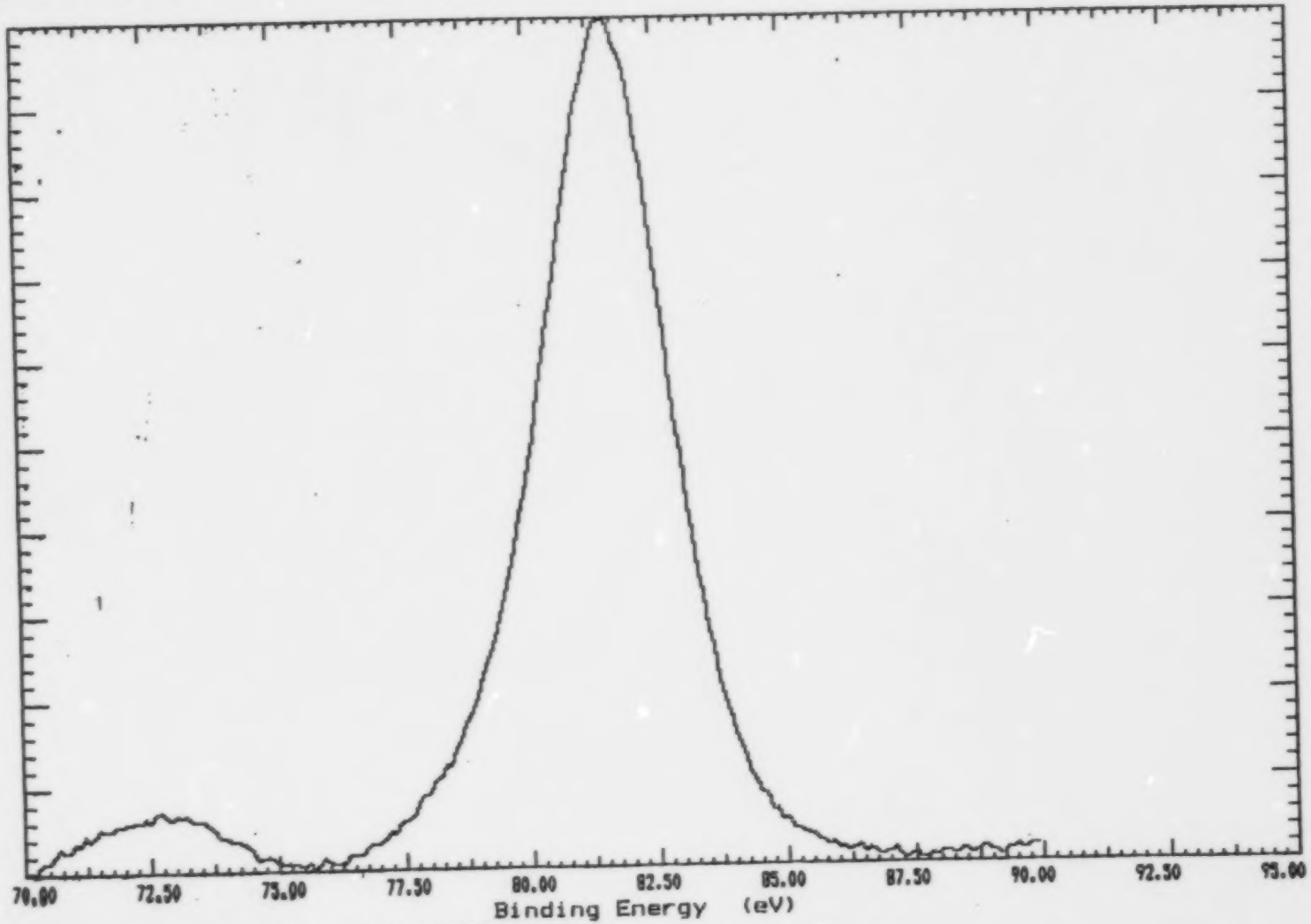
Mg XPS Analyser Energy = 50 eV Max Plotted Count Rate = 175423
Step Size = 1.00 eV. 5 Scans of 1150 channels at 50 ms per chan



GL-4-185A REDUIT CM 15D/H MG300 NR C1
OPT AL2P+MECA V=5*10-8
11H20 17 MAI 90

ASA52 Region 2 AL2P VG SCIENTIFIC

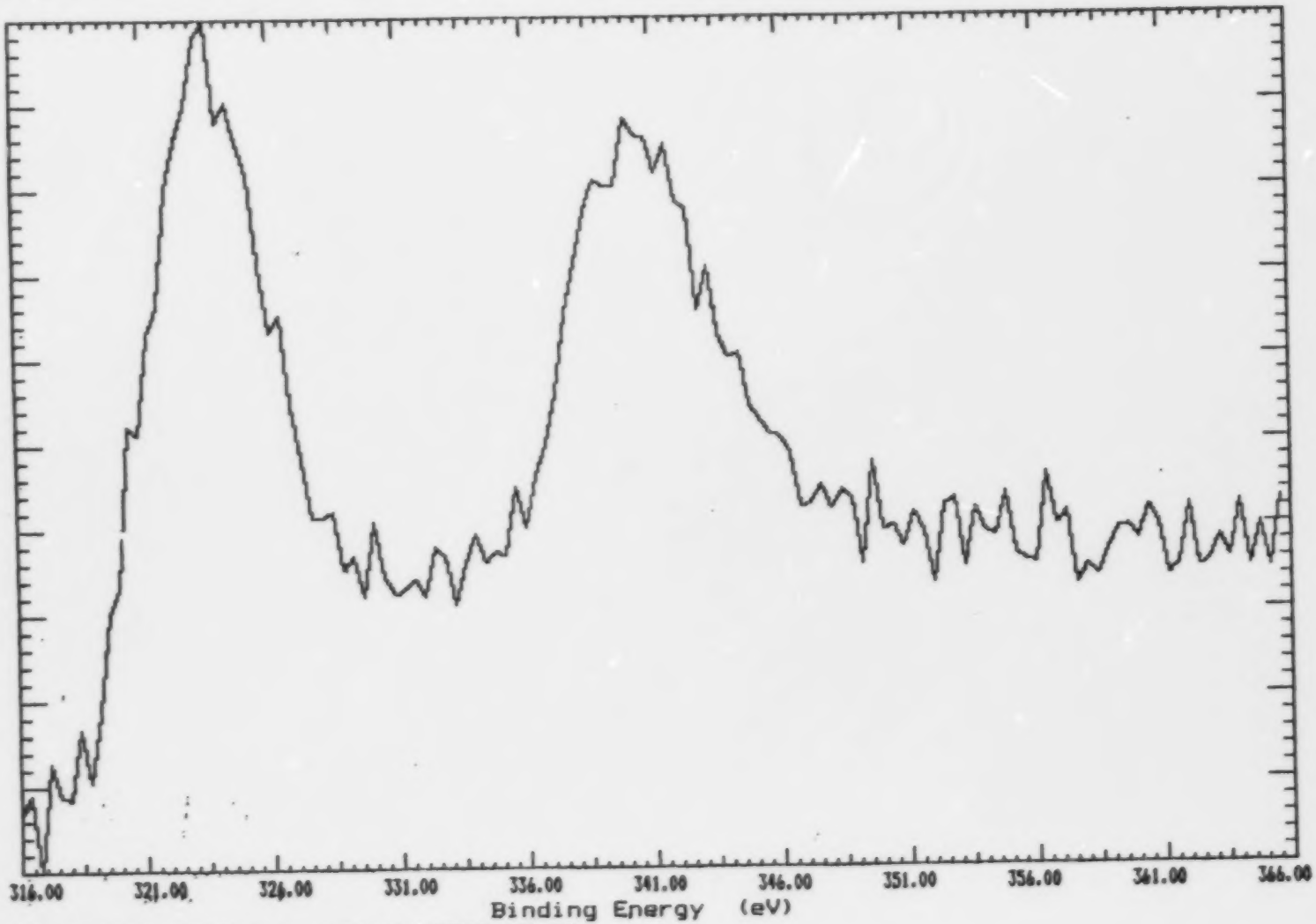
Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 8585
Step Size = 0.10 eV. 49 Scans of 200 channels at 50 ms per chan



GL-4-185A REDUIT CM 15D/H MG300 NR C1
OPT AL2P+MECA V=5*10-8
11H20 17 MAI 90

ASA52 Region 3 PT4D VG SCIENTIFIC

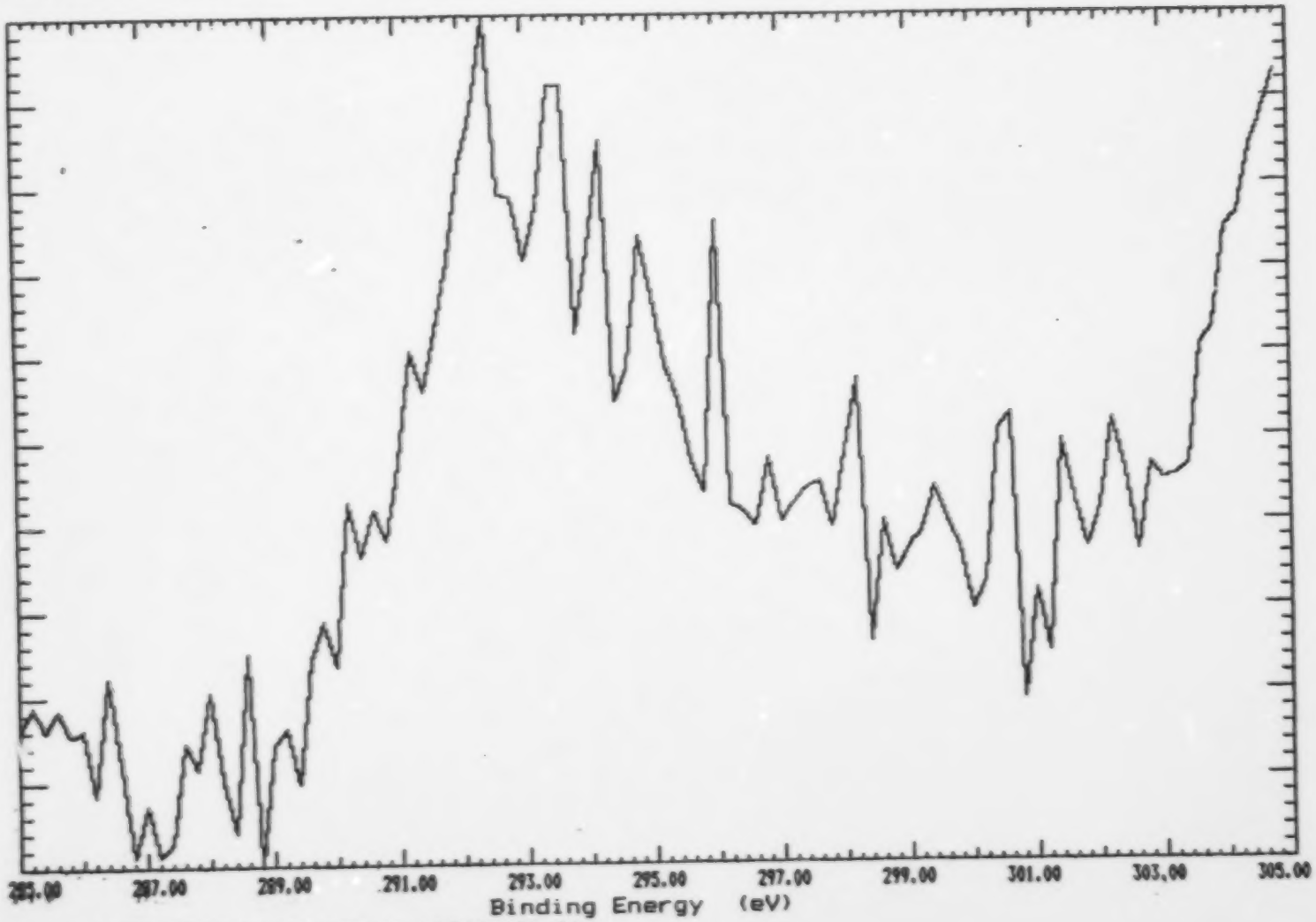
Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 430
Step Size = 0.40 eV. 334 Scans of 125 channels at 50 ms per chan



GL-4-185A REDUIT CM 15D/H MG300 NR C1
OPT AL2P+MECA V=5*10-8
11H20 17 MAI 90

ASA52 Region 4 C1S VG SCIENTIFIC

Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 325
Step Size = 0.20 eV. 100 Scans of 100 channels at 50 ms per chan

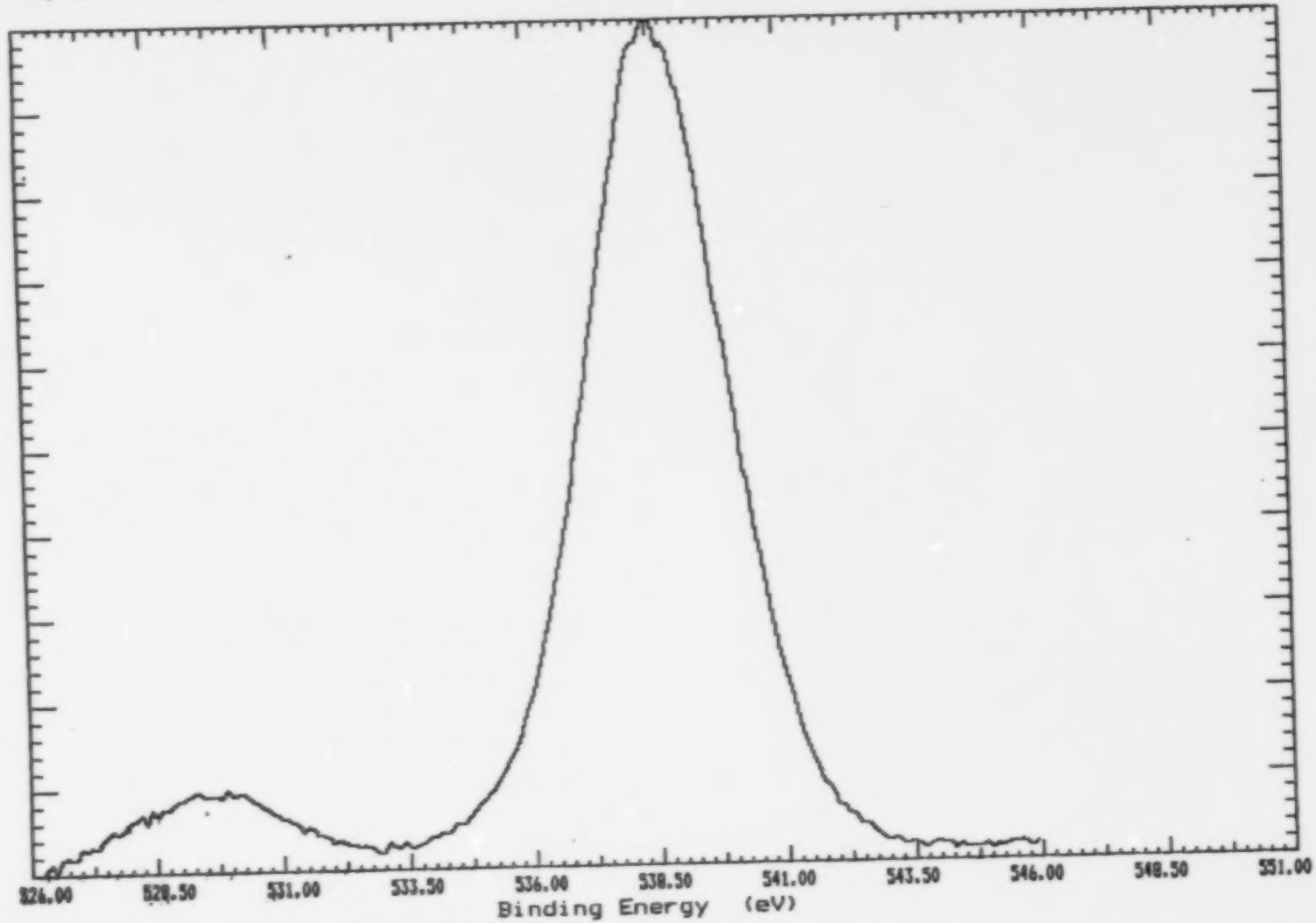


GL-4-185A REDUIT CM 15D/H MG300 NR C1
OPT AL2P+MECA V=5*10-8
11H20 17 MAI 90

ASA52 Region 5 O1S

VG SCIENTIFIC

Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 41677
Step Size = 0.10 eV. 8 Scans of 200 channels at 50 ms per chan

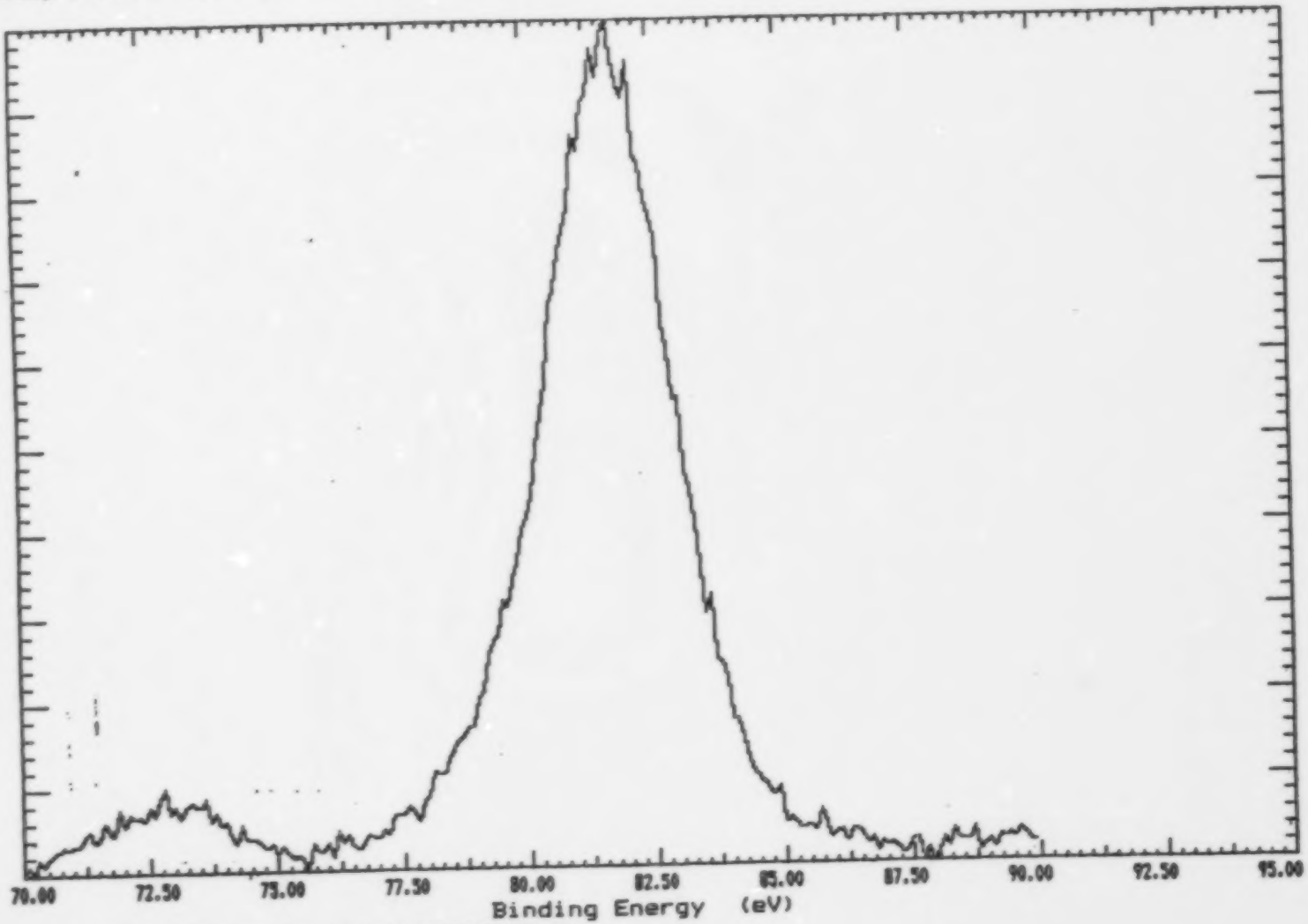


GL-4-185A REDUIT CM 15D/H MG300 NR C1
OPT AL2P+MECA V=5*10-8
11H20 17 MAI 90

ASA52 Region 6 AL2P

VG SCIENTIFIC

Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 8911
Step Size = 0.10 eV. 5 Scans of 200 channels at 50 ms per chan



GL-4-185A REDUIT CM 15D/H MG300 NR C1
OPT AL2P+MECA V=5*10-8
11H20 17 MAI 90

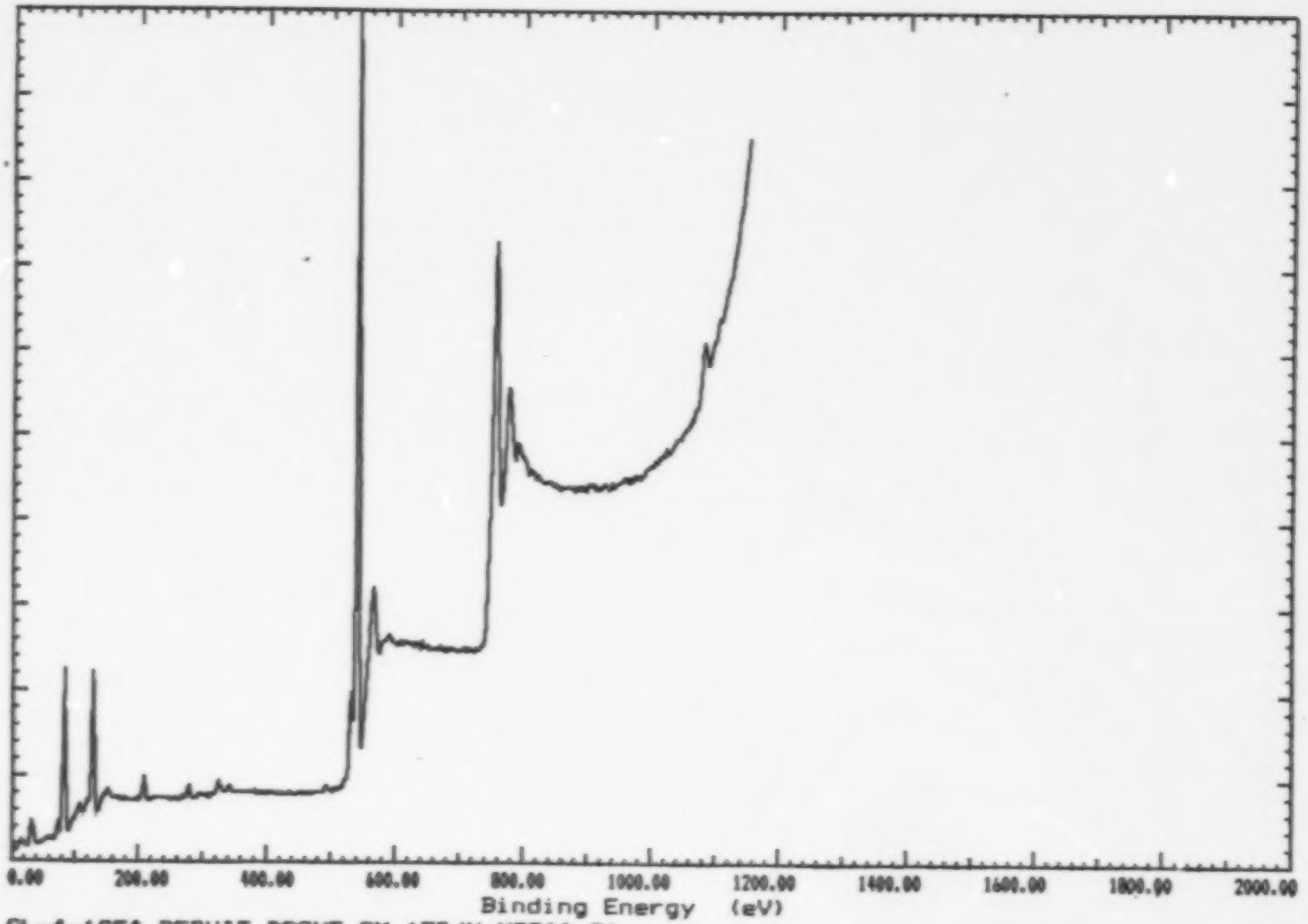
Pt/Alumina

Sample No. 185A (1.85% Pt)

REDUCED AND GROUND

ASA53 Region 1 SURVEY VG SCIENTIFIC

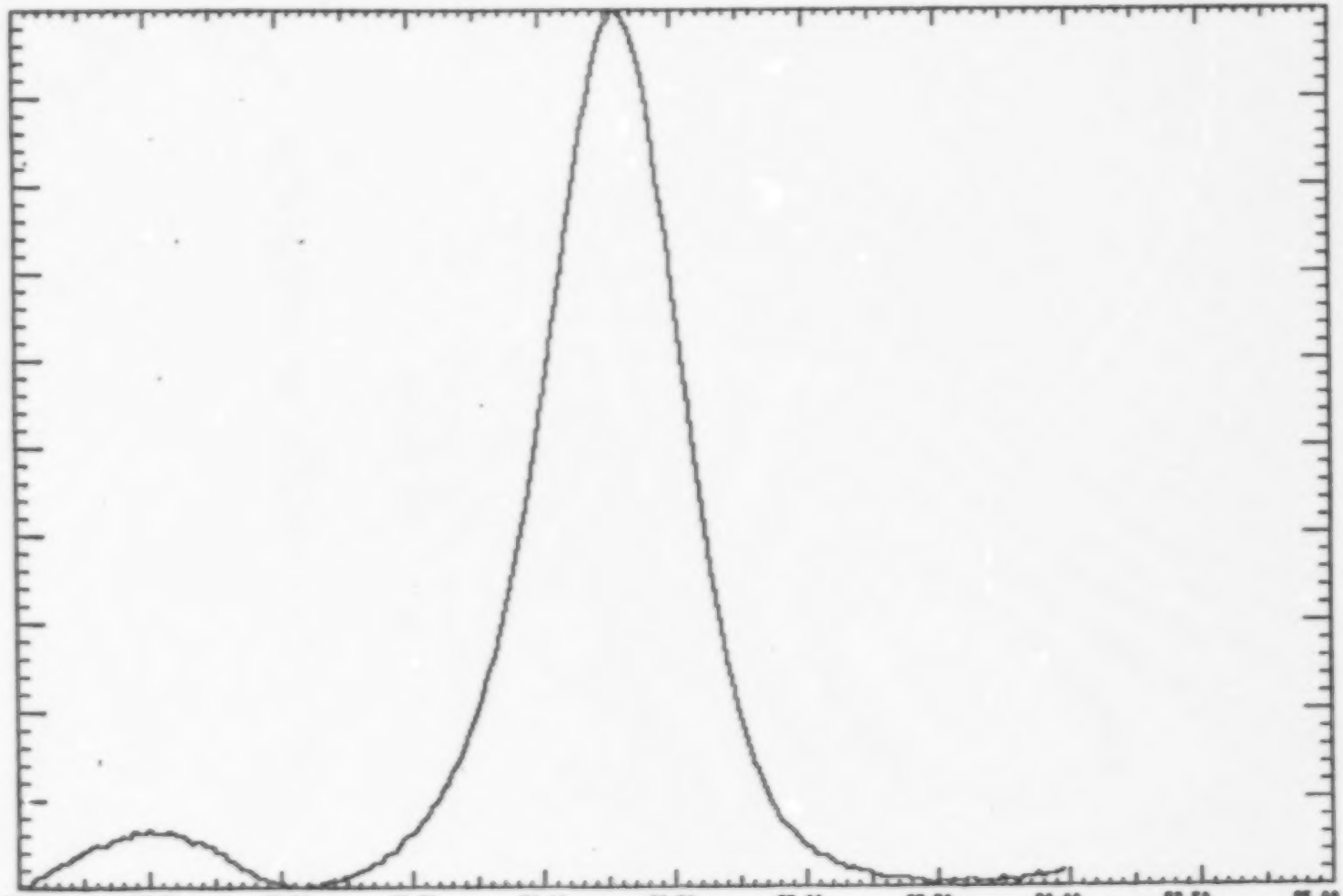
Mg XPS Analyser Energy = 50 eV Max Plotted Count Rate = 184143
Step Size = 1.00 eV. 5 Scans of 1150 channels at 50 ms per chan



GL-4-185A REDUIT BROYE CM 15D/H MG300 C1
NR OPT AL2P+MECA V=2*10-7
13H35 17 MAI 90

ASA53 Region 2 AL2P VG SCIENTIFIC

Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 8567
Step Size = 0.10 eV. 160 Scans of 200 channels at 50 ms per chan

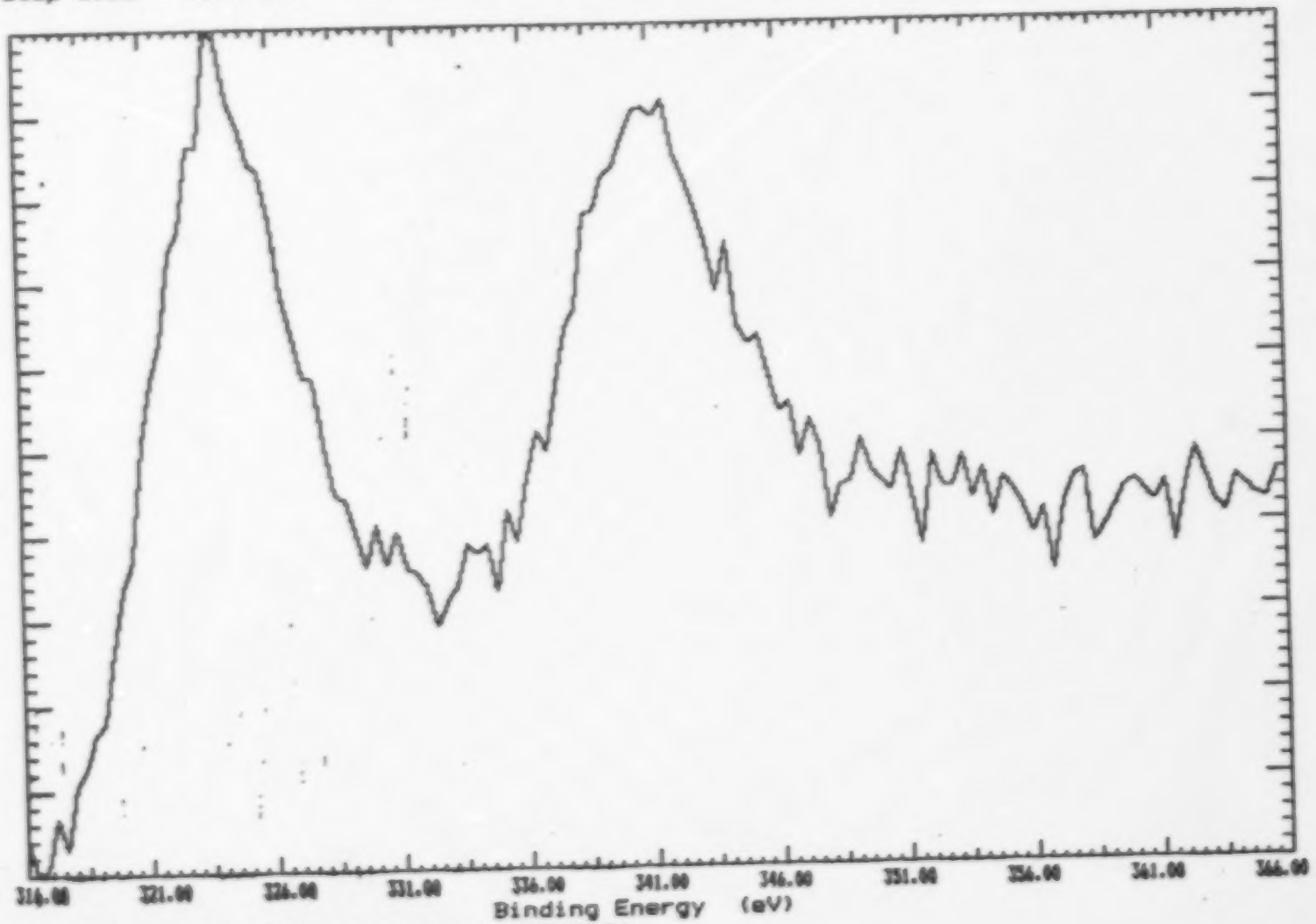


GL-4-185A REDUIT BROYE CM 15D/H MG300 C1
NR OPT AL2P+MECA V=2*10-7
13H35 17 MAI 90

ASA53 Region 3 PT4D

VG SCIENTIFIC

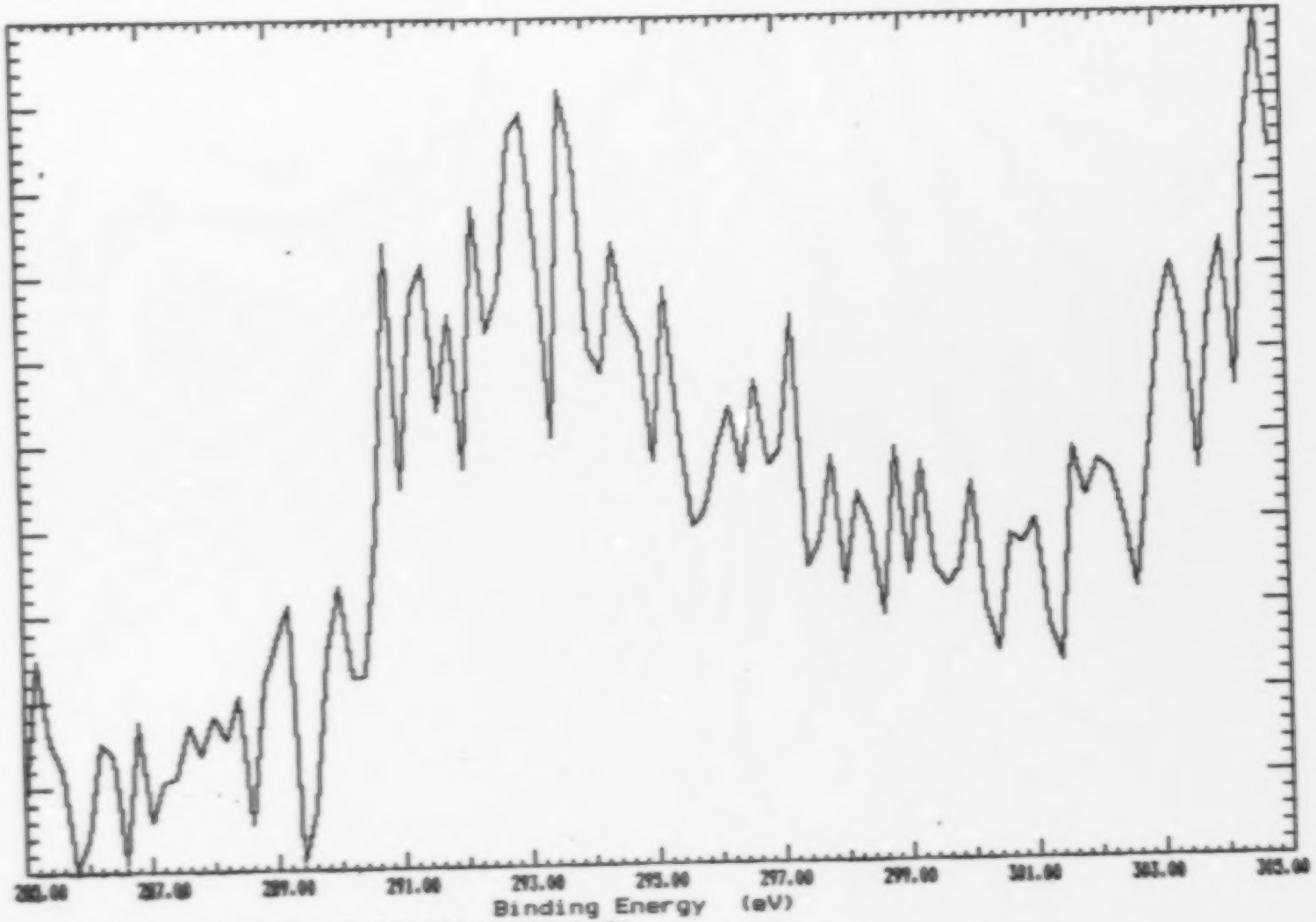
Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 419
Step Size = 0.40 eV. 485 Scans of 125 channels at 50 ms per chan



BL-4-185A REDUIT BROYE CM 15D/H MB300 C1
NR OPT AL2P+MECA V=2*10-7
13H35 17 MAI 90

ASA53 Region 4 C1S VG SCIENTIFIC

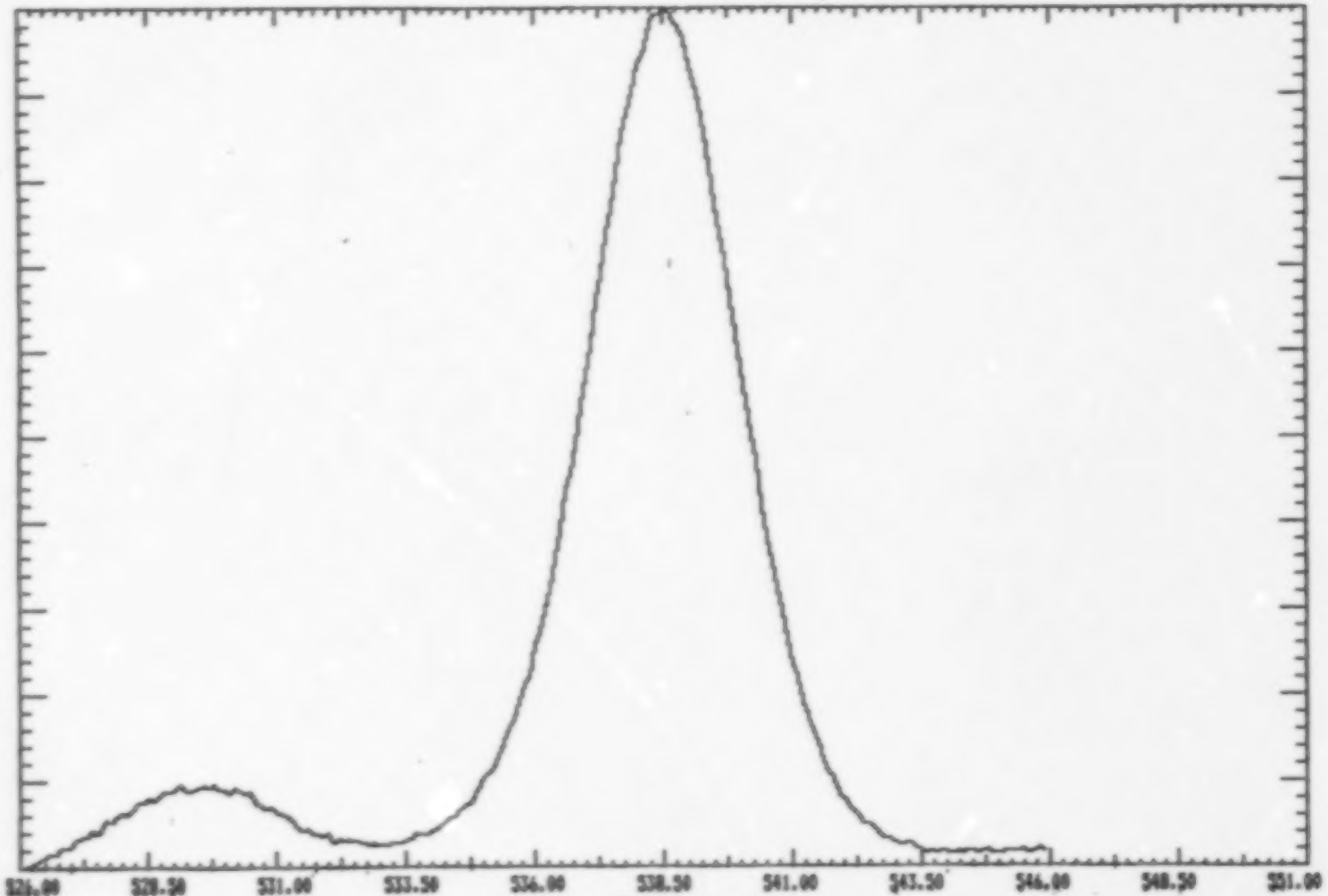
Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 368
Step Size = 0.20 eV. 60 Scans of 100 channels at 50 ms per chan



GL-4-185A REDUIT BROYE CM 15D/H MG300 C1
NR OPT AL2P+MECA V=2*10-7
13H35 17 MAI 90

ASA53 Region 5 O1S VG SCIENTIFIC

Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 43365
Step Size = 0.10 eV. 15 Scans of 200 channels at 50 ms per chan

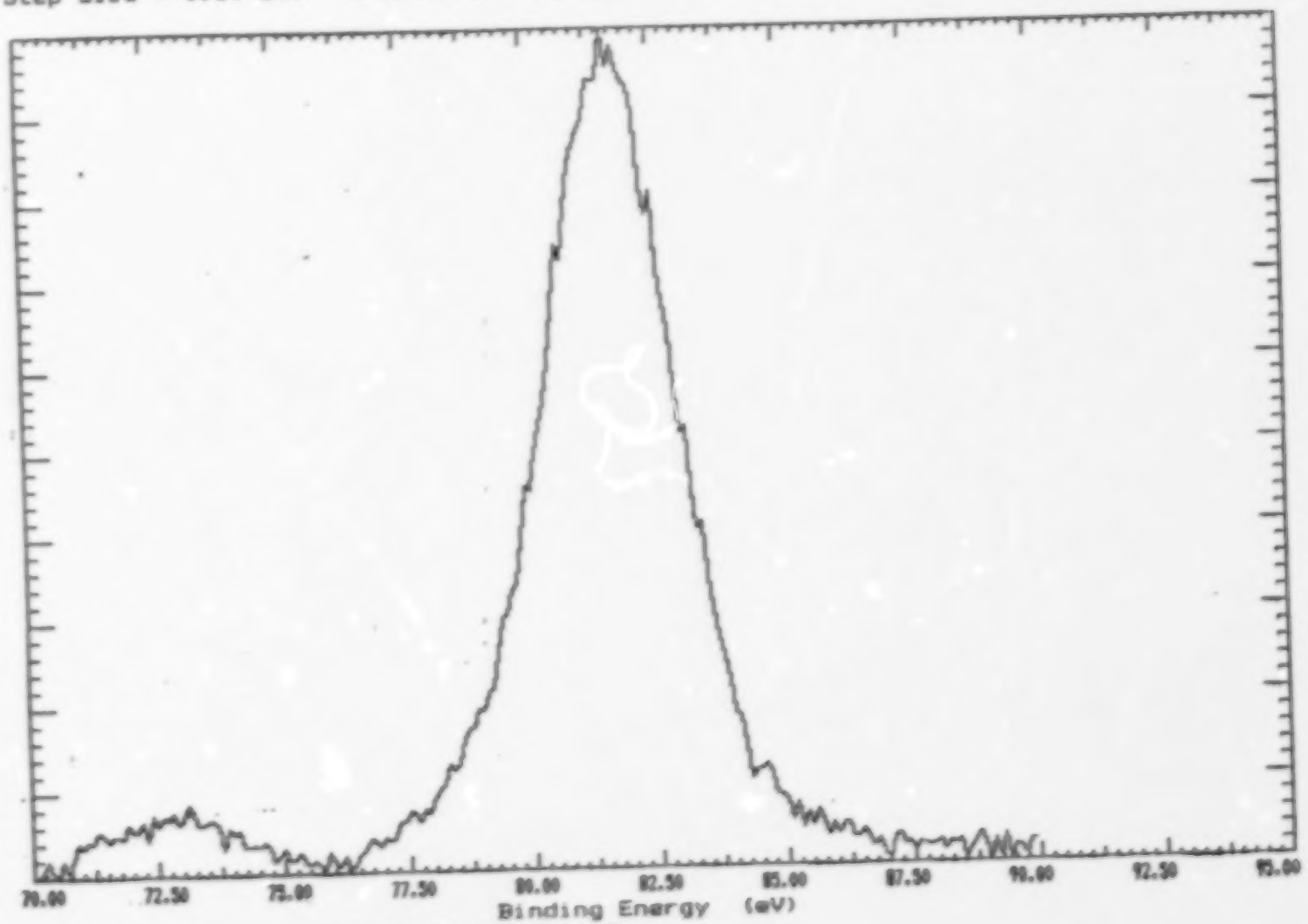


GL-4-185A REDUIT BROYE CM 15D/H MG300 C1
NR OPT AL2P+MECA V=2*10-7
13H35 17 MAI 90

ASA53 Region 6 AL2P

VG SCIENTIFIC

Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 8963
Step Size = 0.10 eV. 5 Scans of 200 channels at 50 ms per chan



GL-4-185A REDUIT BROYE CM 15D/H MG300 C1
NR OPT AL2P+MECA V=2*10-7
13H35 17 MAI 90

Pt/Alumina

Sample No. 185B (0.96% Pt)

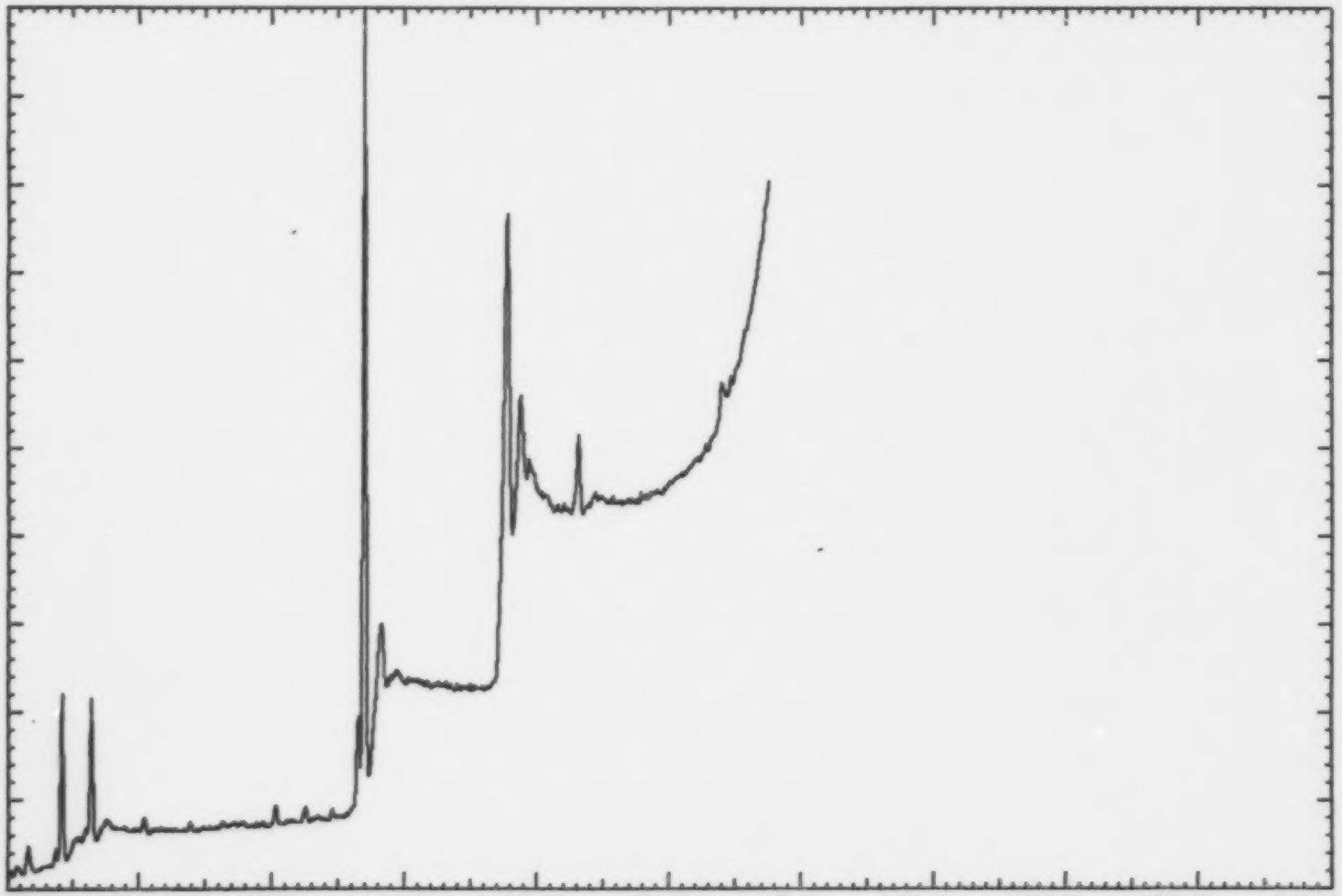
Pt/Alumina

Sample No. 185B (0.96% Pt)

CALCINED

ASA42 Region 1 SURVEY VG SCIENTIFIC

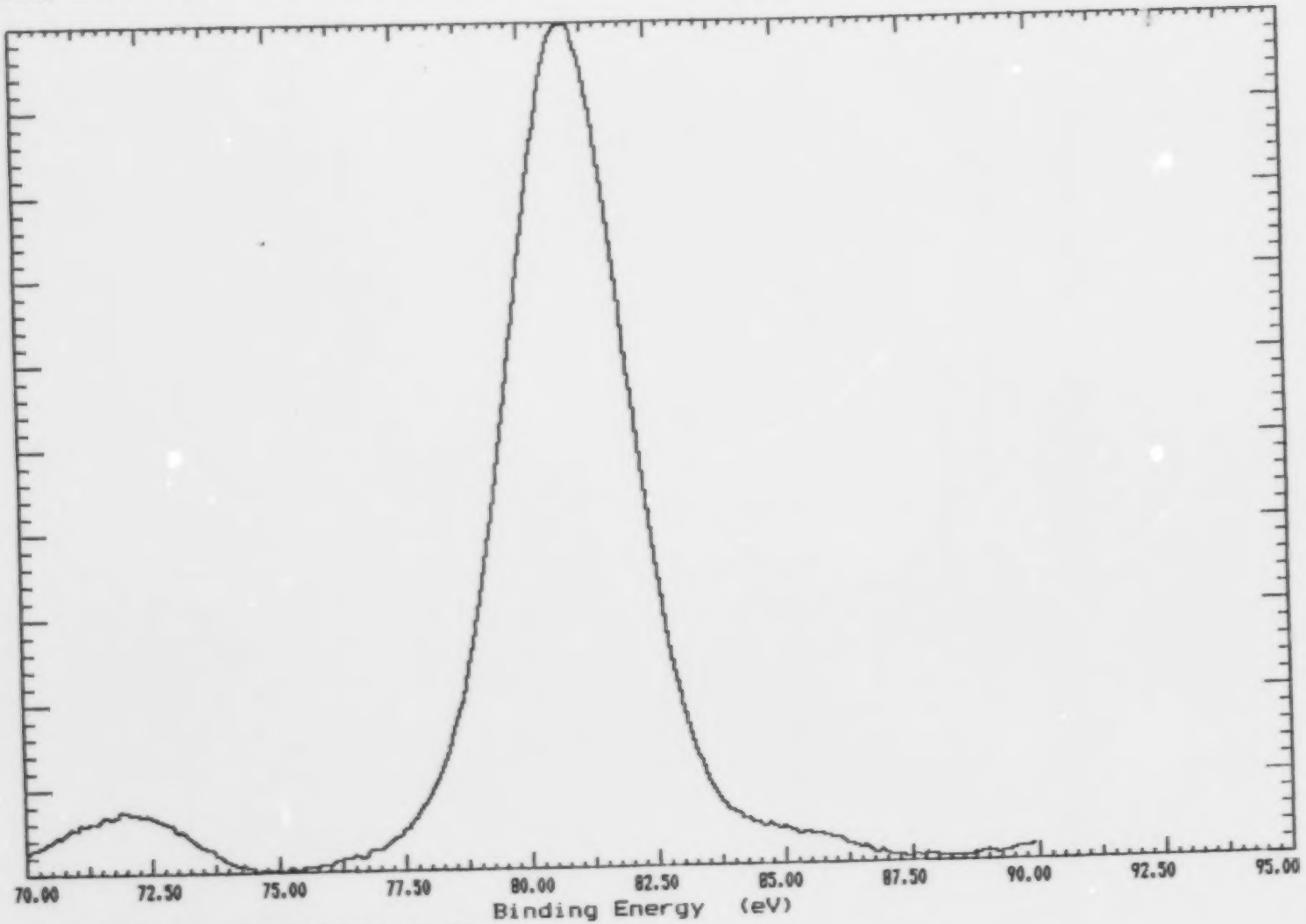
Mg XPS Analyser Energy = 50 eV Max Plotted Count Rate = 136711
Step Size = 1.00 eV. 5 Scans of 1150 channels at 50 ms per chan



GL-4-185B CM 15D/H MG300 C1 NR
OPT AL2P+MECA V=2.5*10-7
13H20 2 AVRIL 90

ASA42 Region 2 AL2P VG SCIENTIFIC

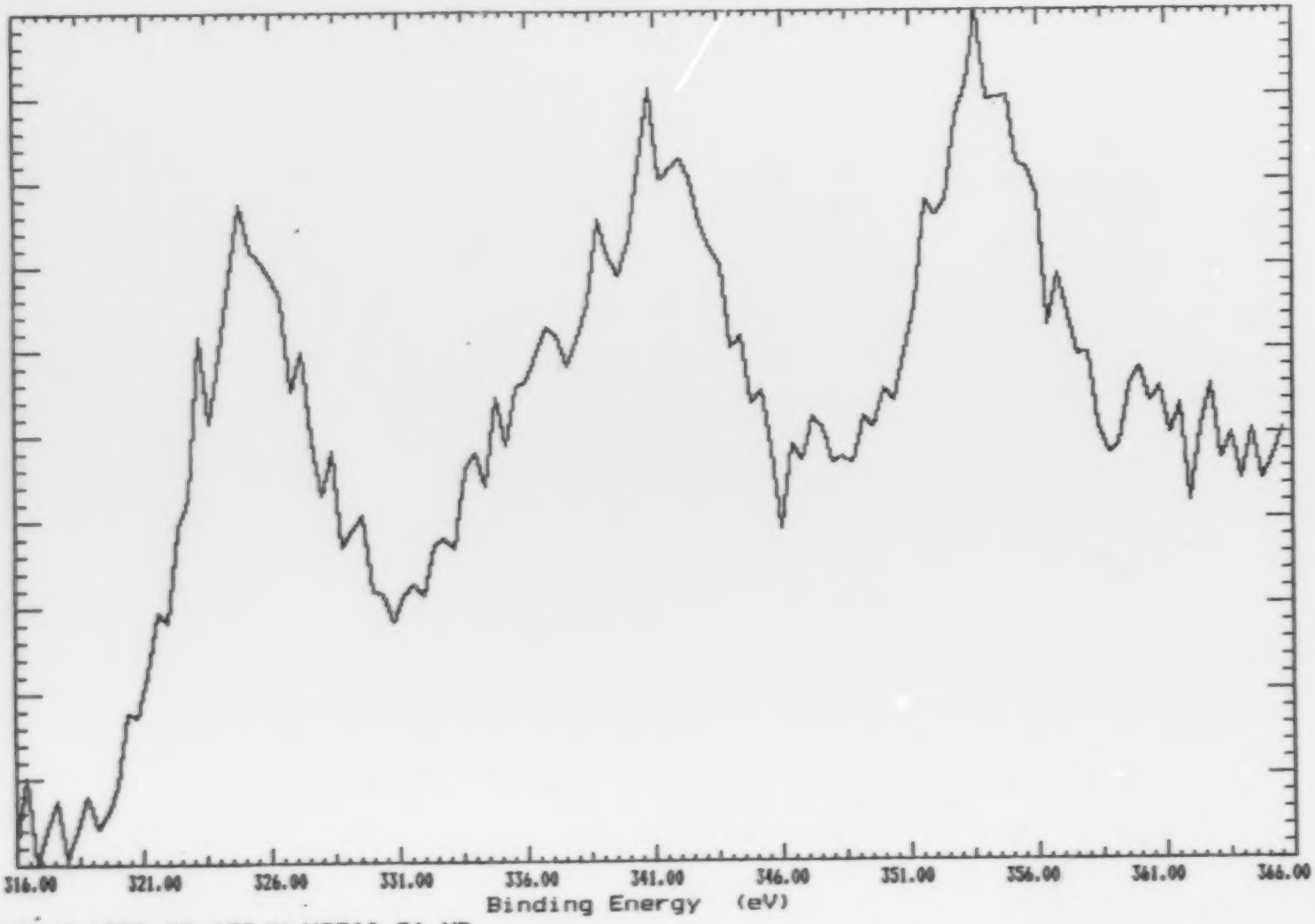
Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 5846
Step Size = 0.10 eV. 200 Scans of 200 channels at 50 ms per chan



GL-4-185B CM 15D/H MG300 C1 NR
OPT AL2P+MECA V=2.5*10-7
13H20 2 AVRIL 90

ASA42 Region 3 PT4D VG SCIENTIFIC

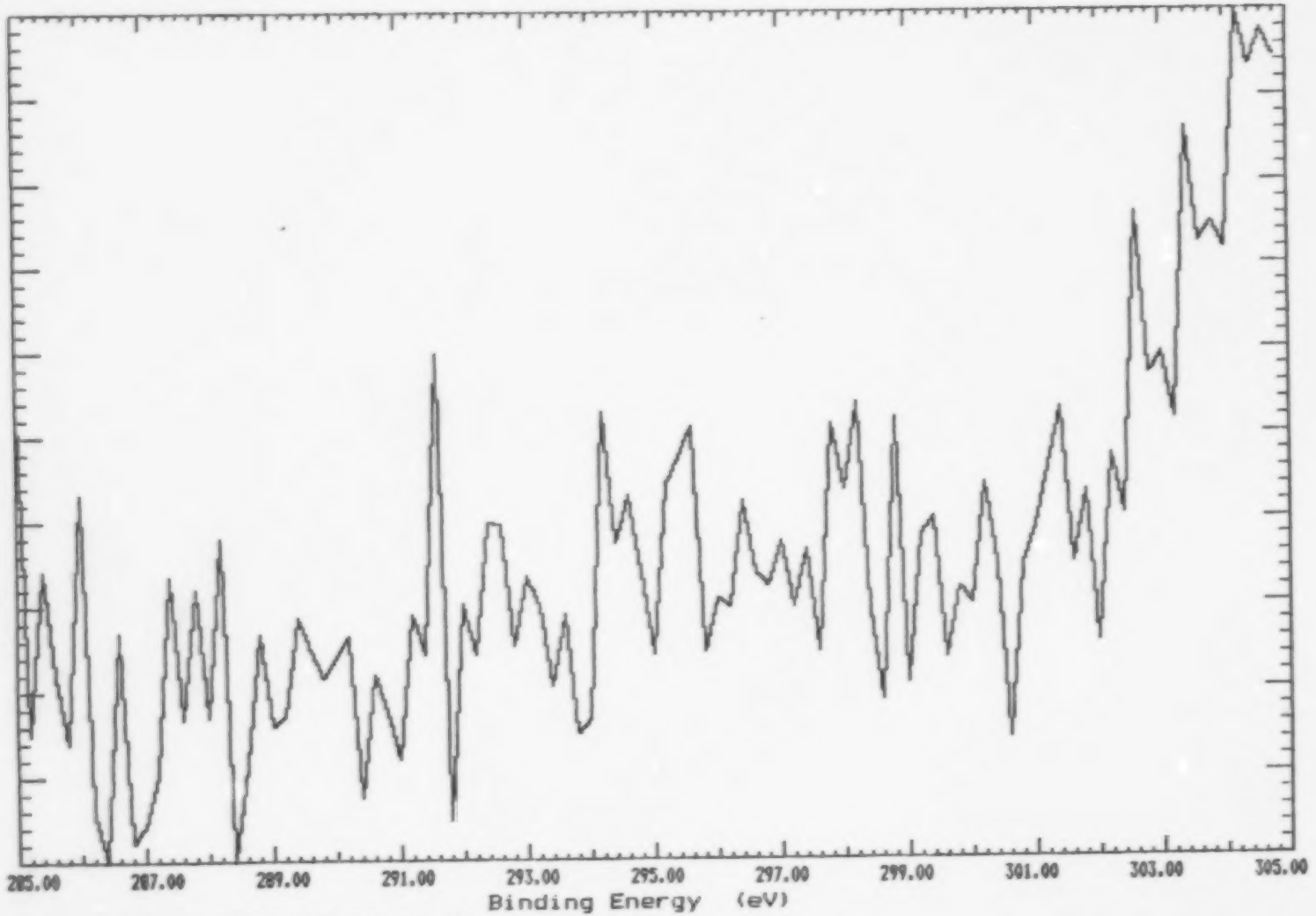
Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 227
Step Size = 0.40 eV. 400 Scans of 125 channels at 50 ms per chan



GL-4-185B CM 15D/H MG300 C1 NR
OPT AL2P+MECA V=2.5*10-7
13H20 2 AVRIL 90

ASA42 Region 4 C1S VG SCIENTIFIC

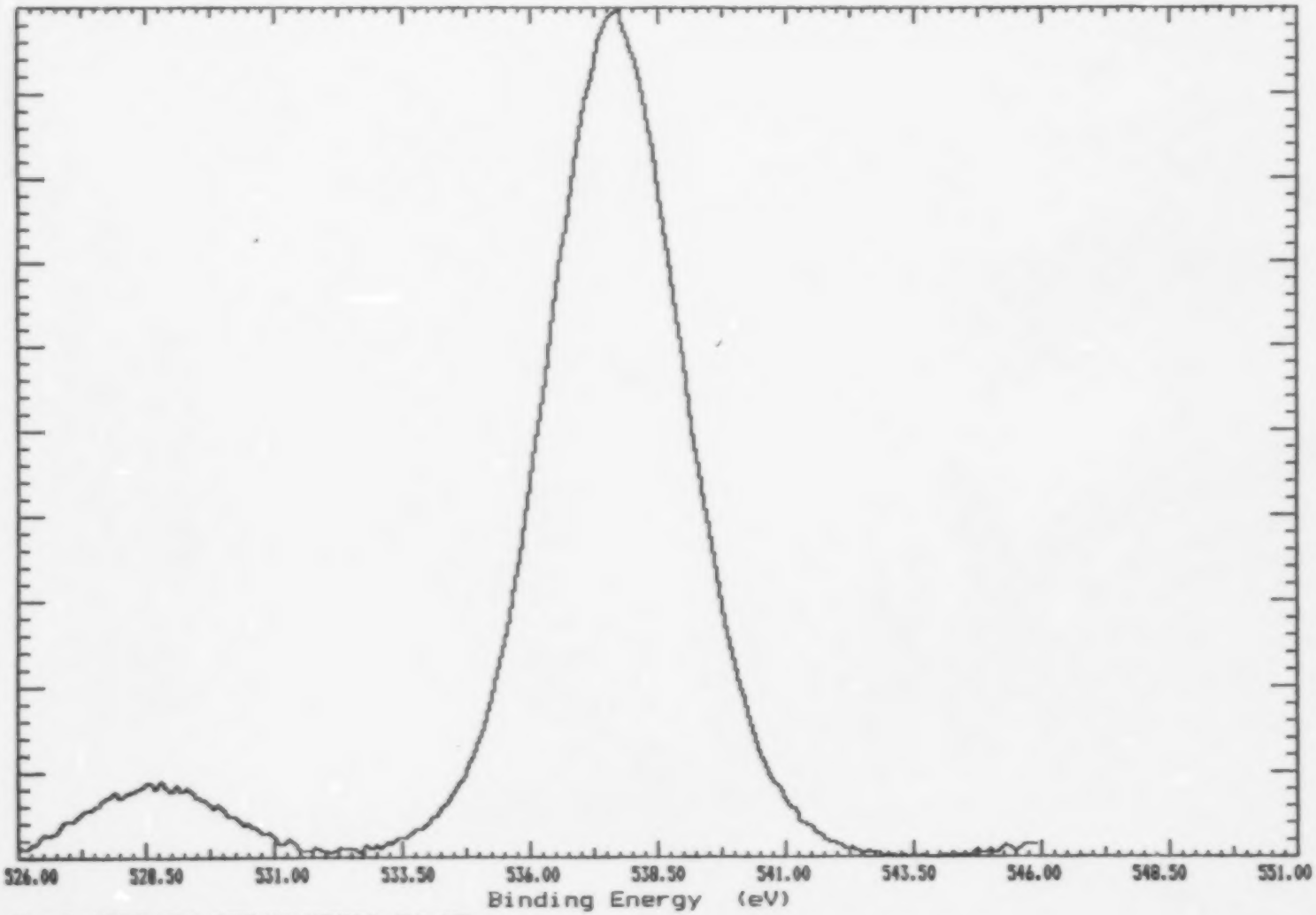
Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 178
Step Size = 0.20 eV. 100 Scans of 100 channels at 50 ms per chan



GL-4-185B CM 15D/H MG300 C1 NR
OPT AL2P+MECA V=2.5*10-7
13H20 2 AVRIL 90

ASA42 Region 5 O1S VG SCIENTIFIC

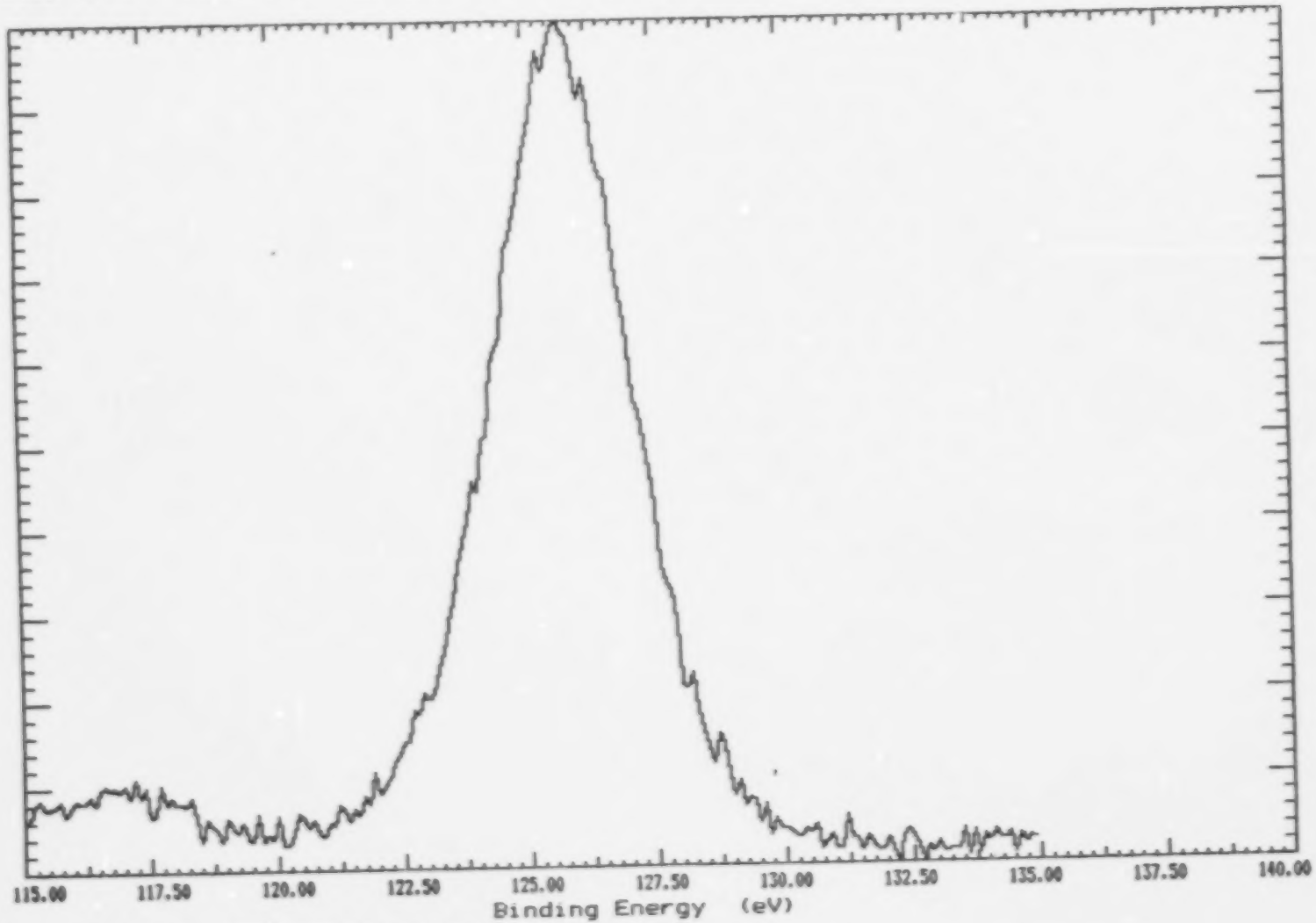
Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 30477
Step Size = 0.10 eV. 15 Scans of 200 channels at 50 ms per chan



GL-4-185B CM 15D/H MG300 C1 NR
OPT AL2P+MECA V=2.5*10-7
13H20 2 AVRIL 90

ASA42 Region 6 AL2S VG SCIENTIFIC

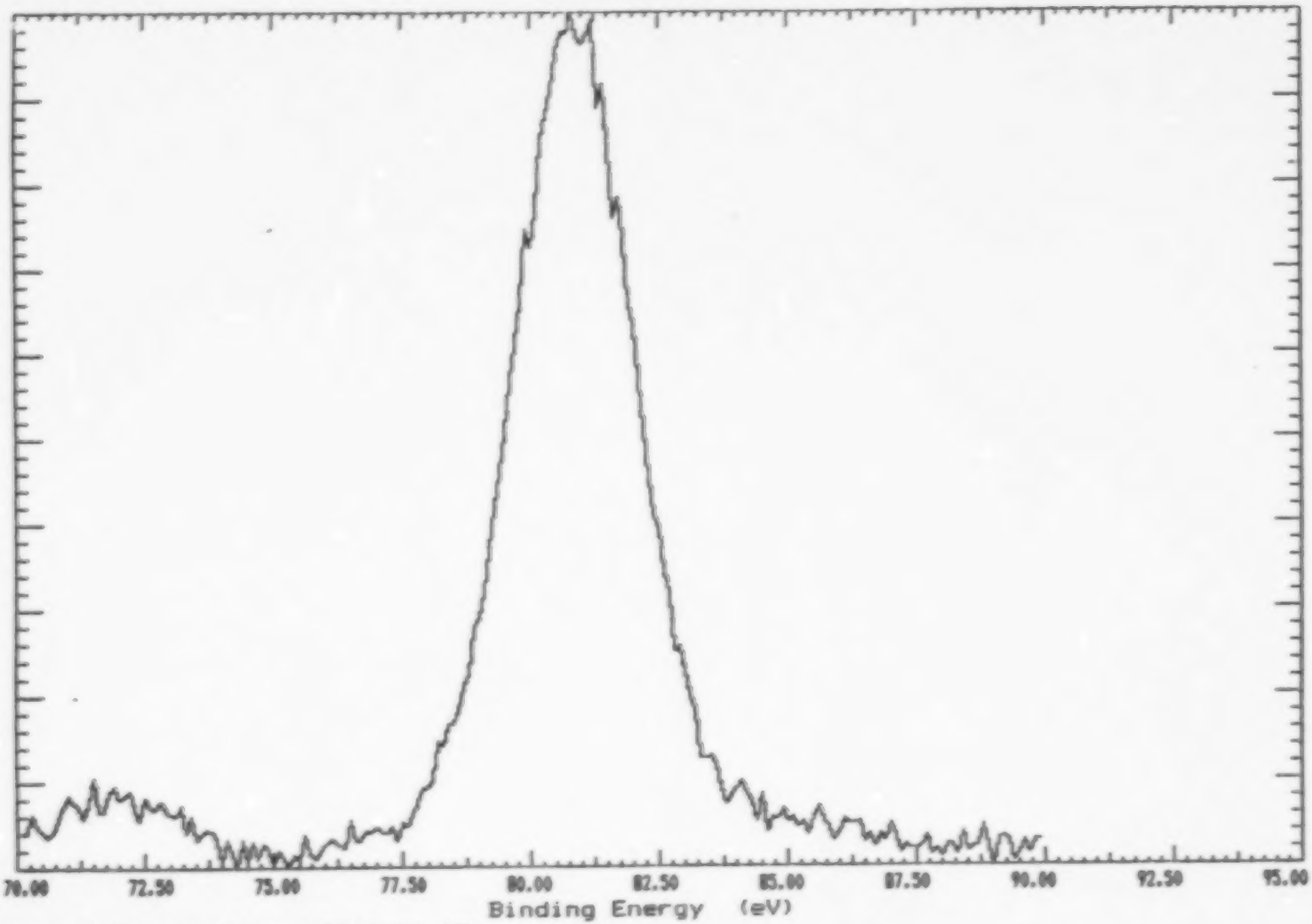
Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 5213
Step Size = 0.10 eV. 10 Scans of 200 channels at 50 ms per chan



GL-4-185B CM 15D/H MG300 C1 NR
OPT AL2P+MECA V=2.5*10-7
13H20 2 AVRIL 90

ASA42 Region 7 AL2P VG SCIENTIFIC

Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 5959
Step Size = 0.10 eV. 5 Scans of 200 channels at 50 ms per chan



GL-4-185B CM 15D/H MG300 C1 NR
OPT AL2P+MECA V=2.5*10-7
13H20 2 AVRIL 90

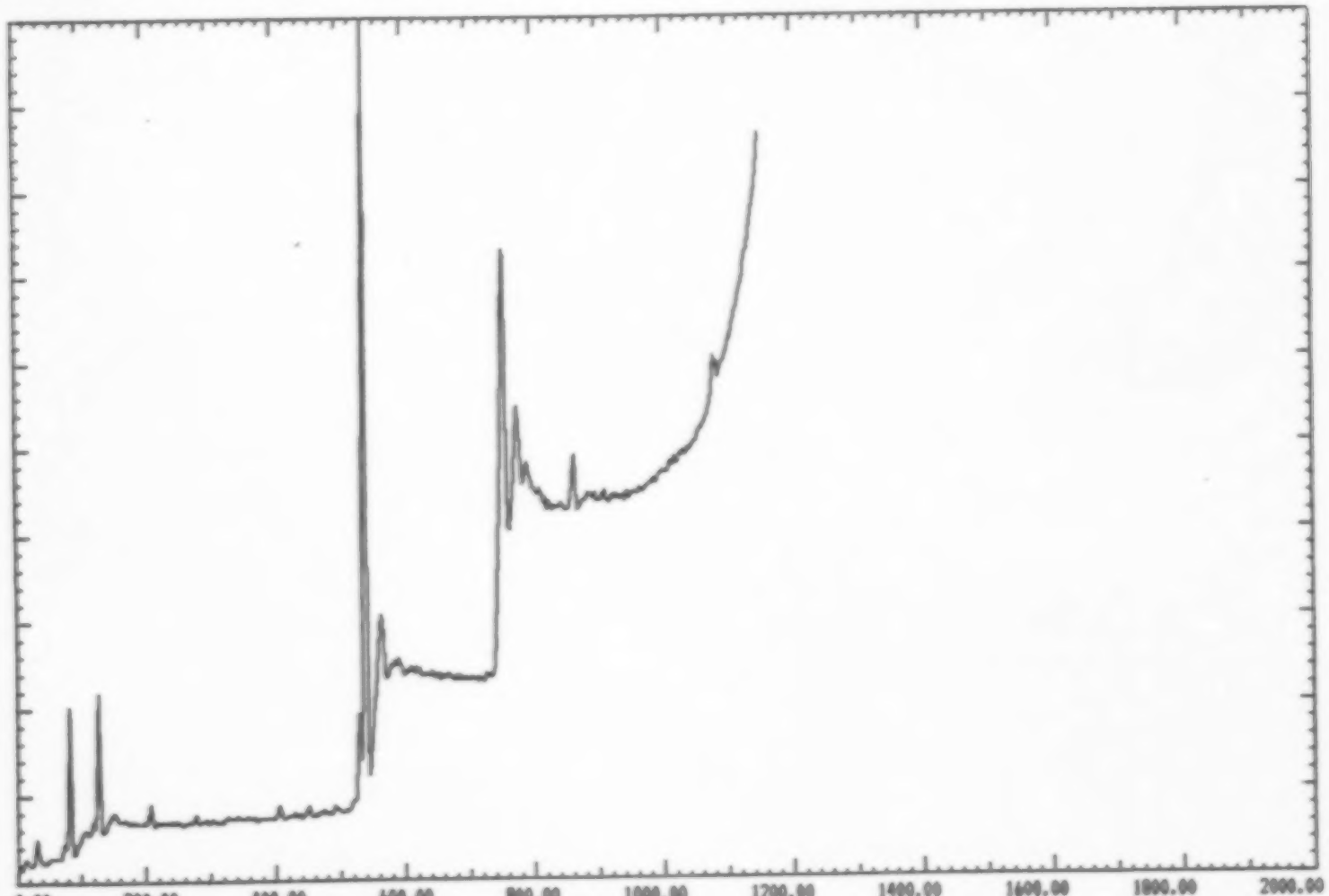
Pt/Alumina

Sample No. 185B (0.96% Pt)

CALCINED AND GROUND

ASA43 Region 1 SURVEY VG SCIENTIFIC

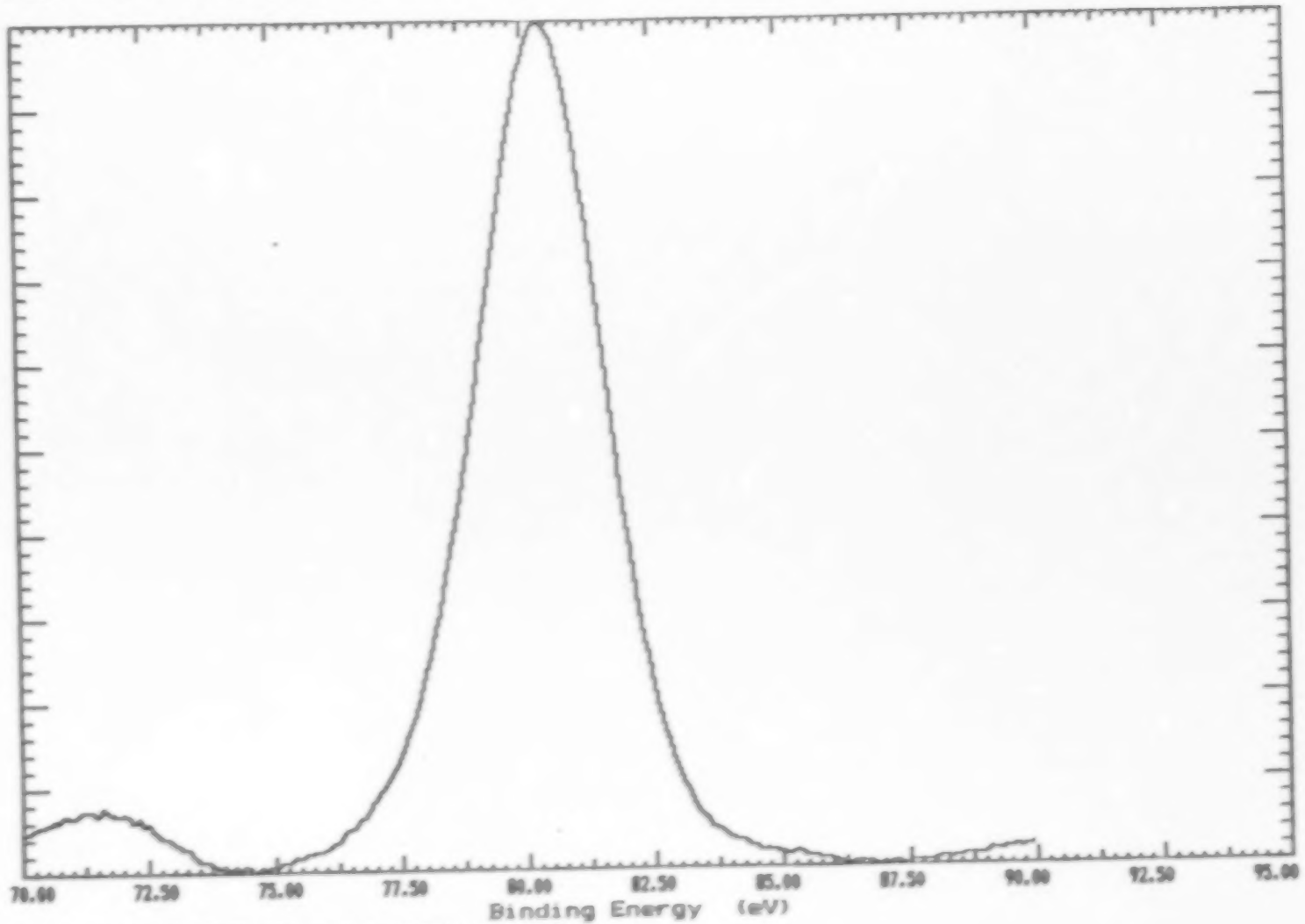
Mg XPS Analyser Energy = 50 eV Max Plotted Count Rate = 138511
Step Size = 1.00 eV. 5 Scans of 1150 channels at 50 ms per chan



GL-4-185B-BROYE CM 15D/H MG300 C1 NR
OPT AL2P+MECA V=6*10-8
BH48 3AVRIL 90

ASA43 Region 2 AL2P VG SCIENTIFIC

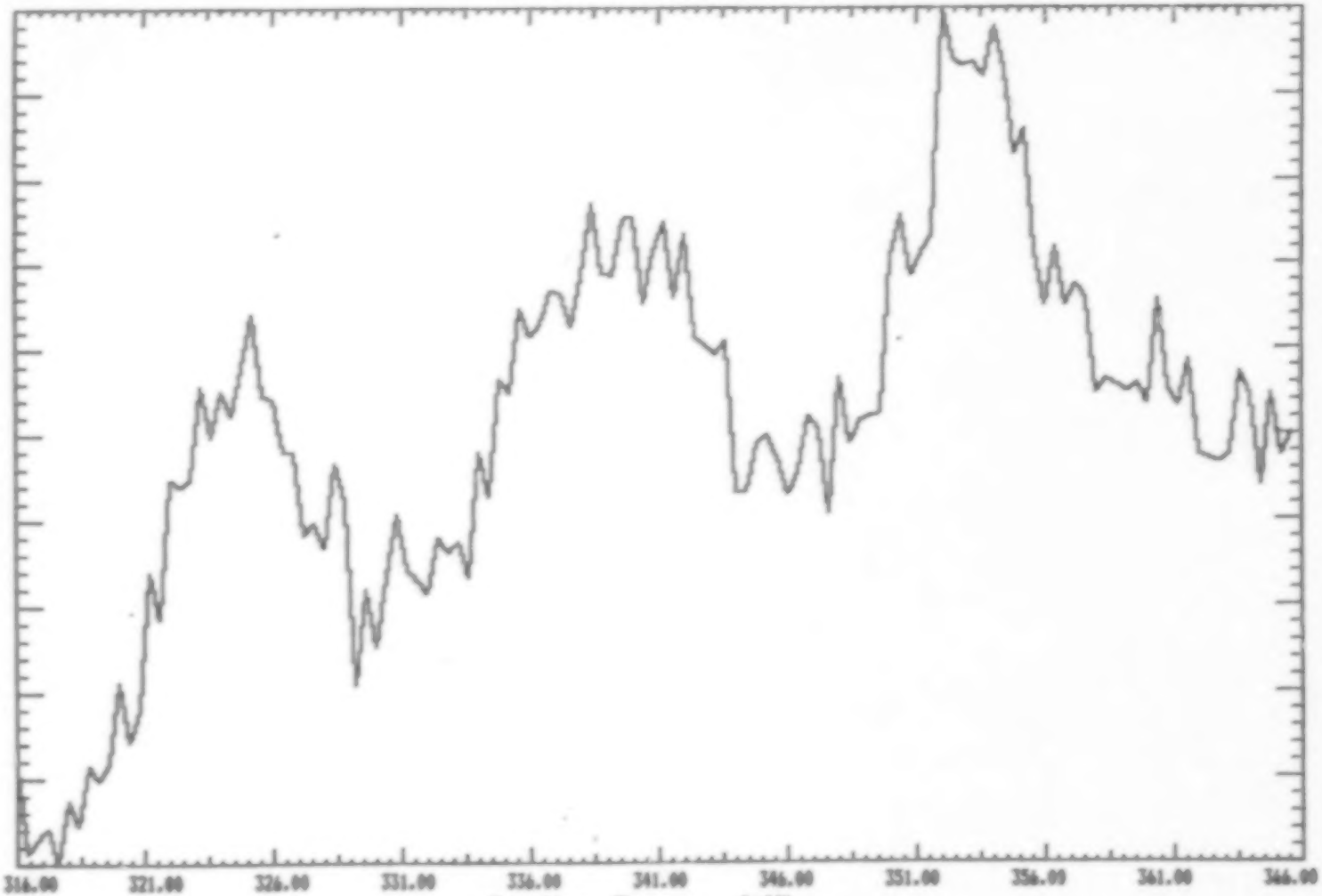
Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 5531
Step Size = 0.10 eV. 200 Scans of 200 channels at 50 ms per chan



GL-4-185B-BROYE CM 15D/H MB300 C1 NR
OPT AL2P+MECA V=6*10-8
BH48 3AVRIL 90

ASA43 Region 3 PT4D VG SCIENTIFIC

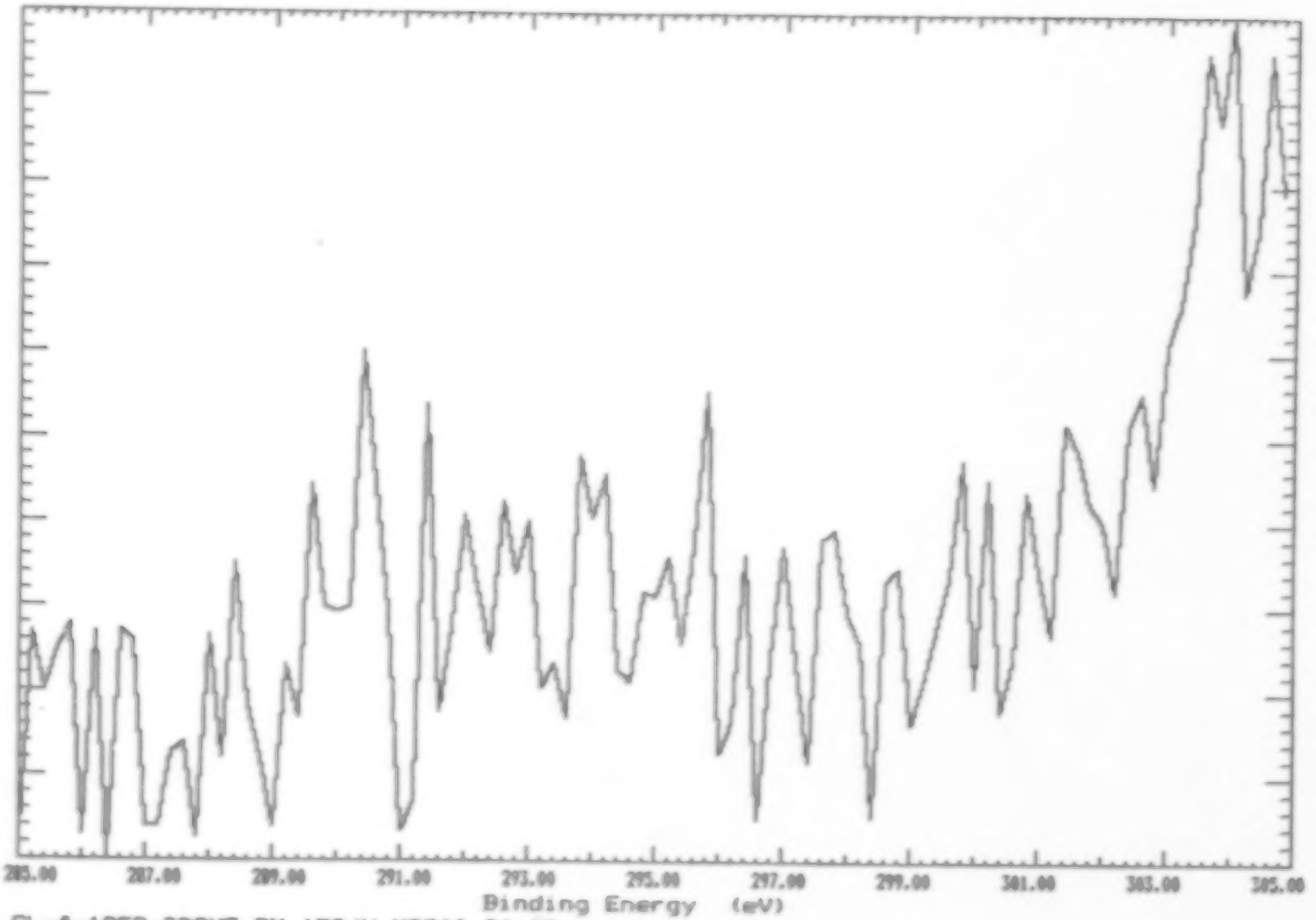
Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 190
Step Size = 0.40 eV. 450 Scans of 125 channels at 50 ms per chan



GL-4-185B-BROYE CM 150/H MG300 C1 NR
OPT AL2P+MECA V=6*10-8
BH48 3AVRIL 90

ASA43 Region 4 C1S VG SCIENTIFIC

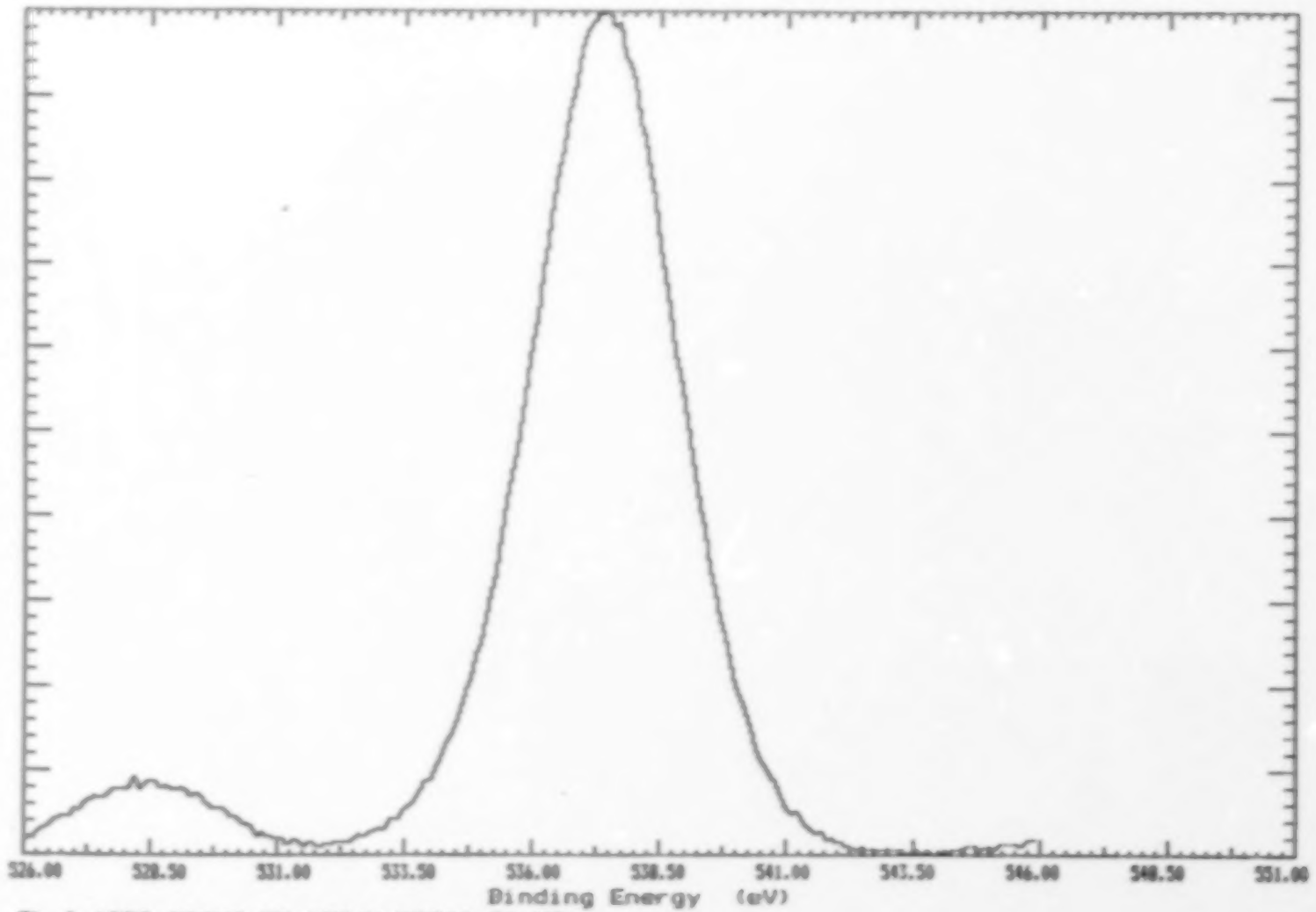
Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 189
Step Size = 0.20 eV. 100 Scans of 100 channels at 50 ms per chan



GL-4-185B-BROYE CM 15D/H MG300 C1 NR
OPT AL2P+MECA V=6*10-8
BH4B 3AVRIL 90

ASA43 Region 5 O1S VG SCIENTIFIC

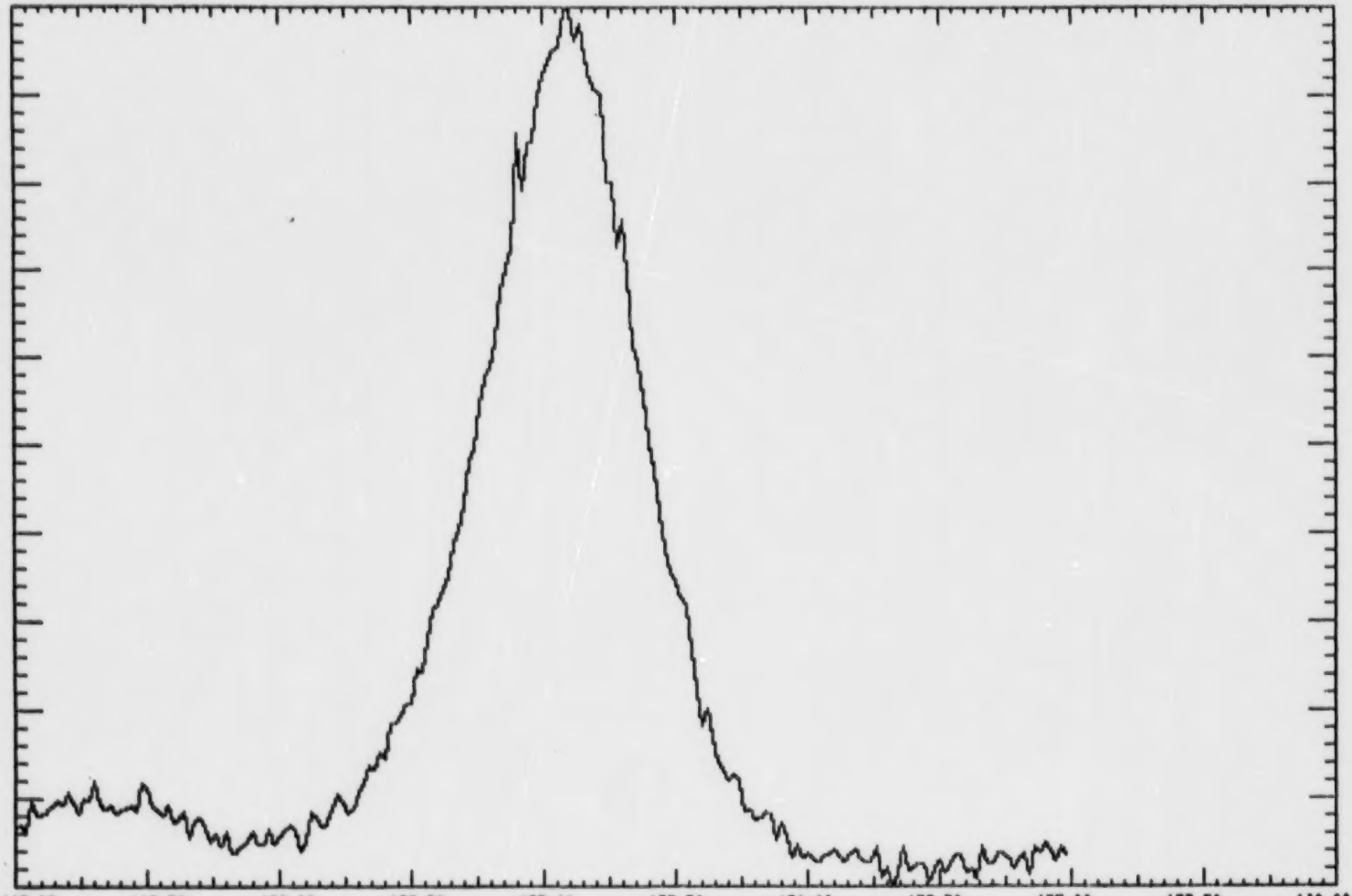
Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 30536
Step Size = 0.10 eV. 15 Scans of 200 channels at 50 ms per chan



GL-4-185B-BROYE CM 15D/H MG300 C1 NR
OPT AL2P+MECA V=6*10-8
BH48 3AVRIL 90

ASA43 Region 6 AL2S VG SCIENTIFIC

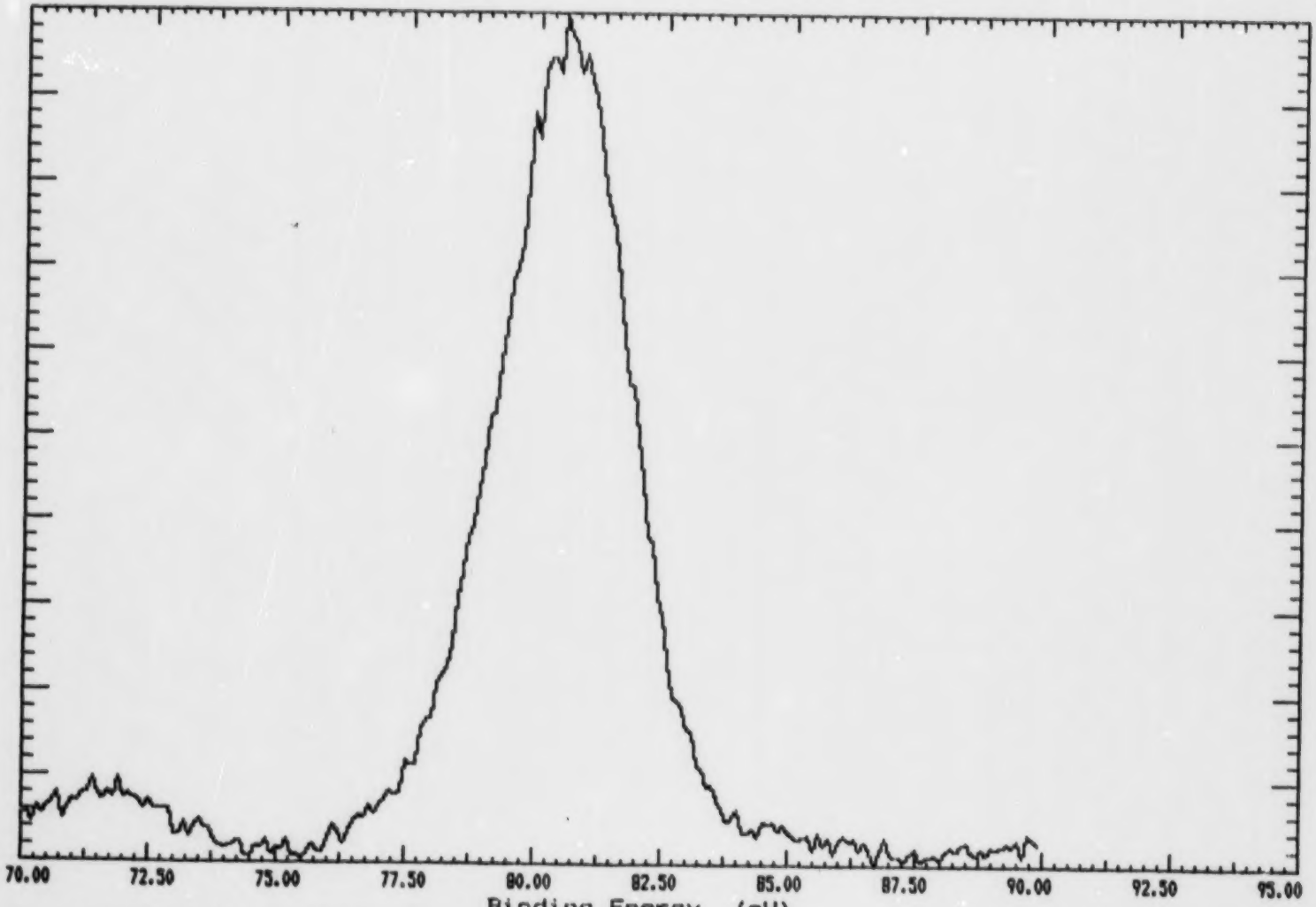
Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 5377
Step Size = 0.10 eV. 10 Scans of 200 channels at 50 ms per chan



GL-4-185B-BROYE CM 15D/H MG300 C1 NR
OPT AL2P+MECA V=6*10-8
8H48 3AVRIL 90

ASA43 Region 7 AL2P VG SCIENTIFIC

Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 5809
Step Size = 0.10 eV. 10 Scans of 200 channels at 50 ms per chan



GL-4-185B-BROYE CM 15D/H MG300 C1 NR
OPT AL2P+MECA V=6*10-8
8H48 3AVRIL 90

Pt/Alumina

Sample No. 185B (0.96% Pt)

CALCINED AND GROUND

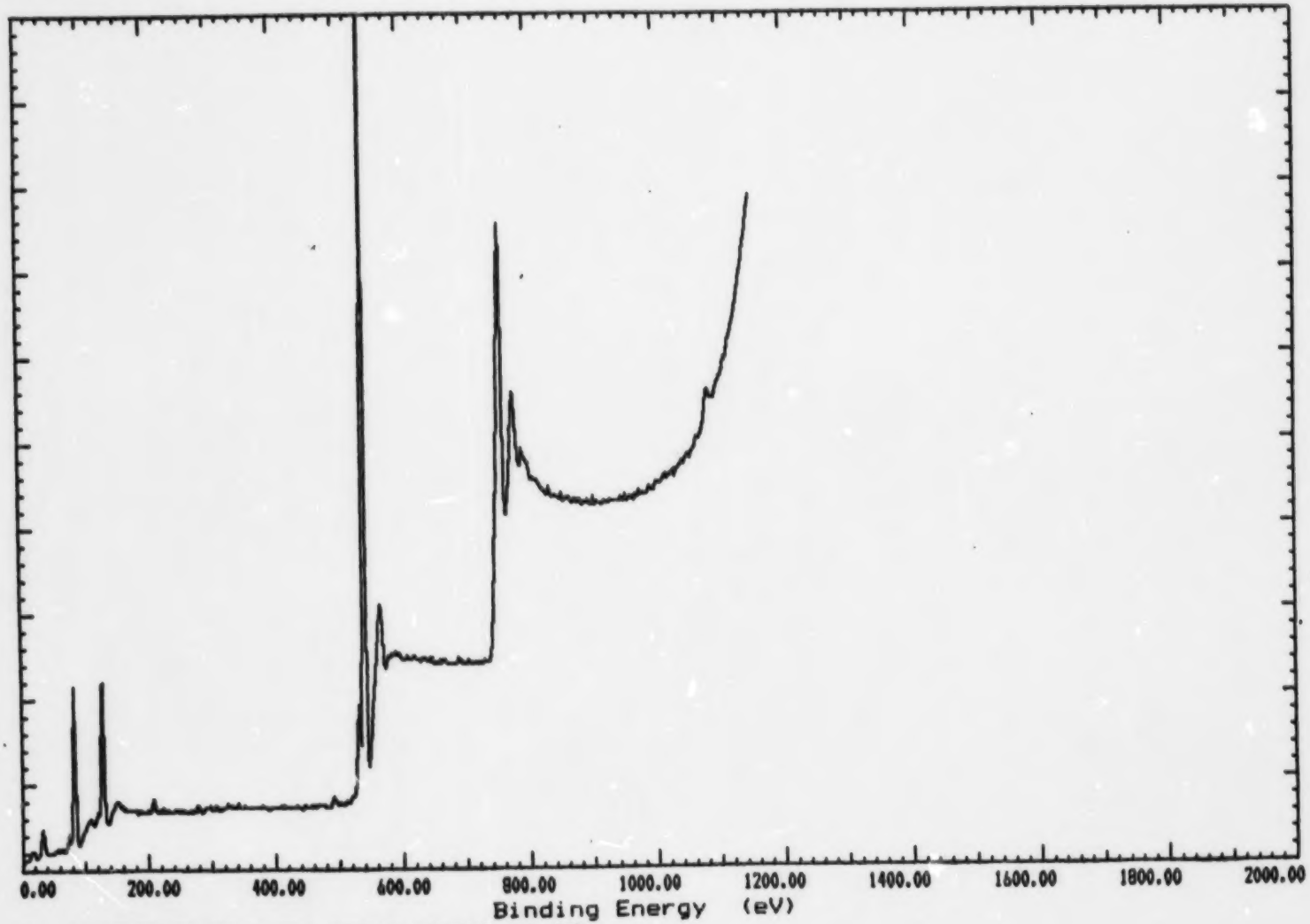
Pt/Alumina

Sample No. 185B (0.96% Pt)

REDUCED

ASA54 Region 1 SURVEY VG SCIENTIFIC

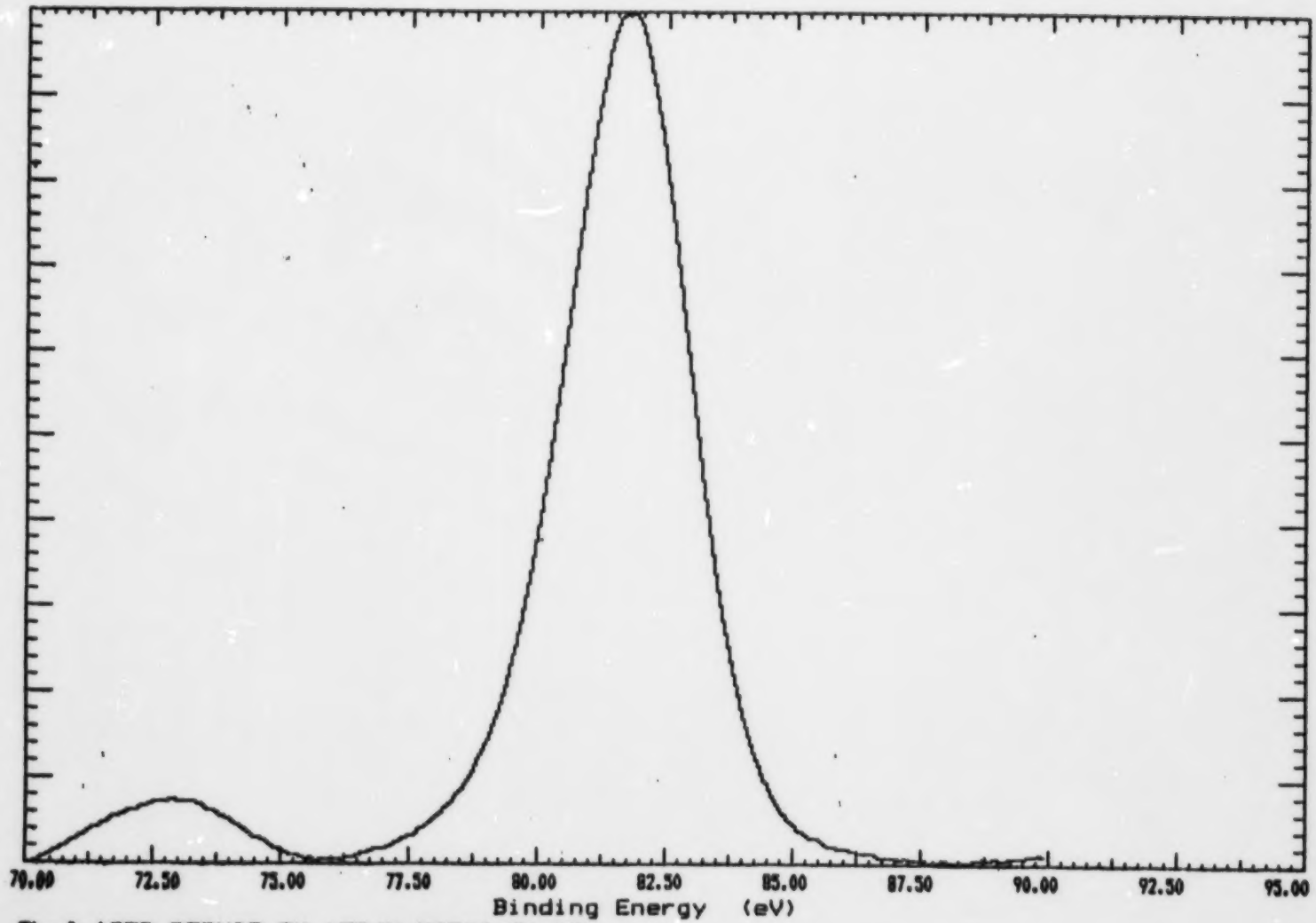
Mg XPS Analyser Energy = 50 eV Max Plotted Count Rate = 175975
Step Size = 1.00 eV. 5 Scans of 1150 channels at 50 ms per chan



GL-4-185B REDUIT CM 15D/H MG300 C1 NR
OPT AL2P+MECA V=3*10-8
16H15 17 MAI 90

ASA54 Region 2 AL2P VG SCIENTIFIC

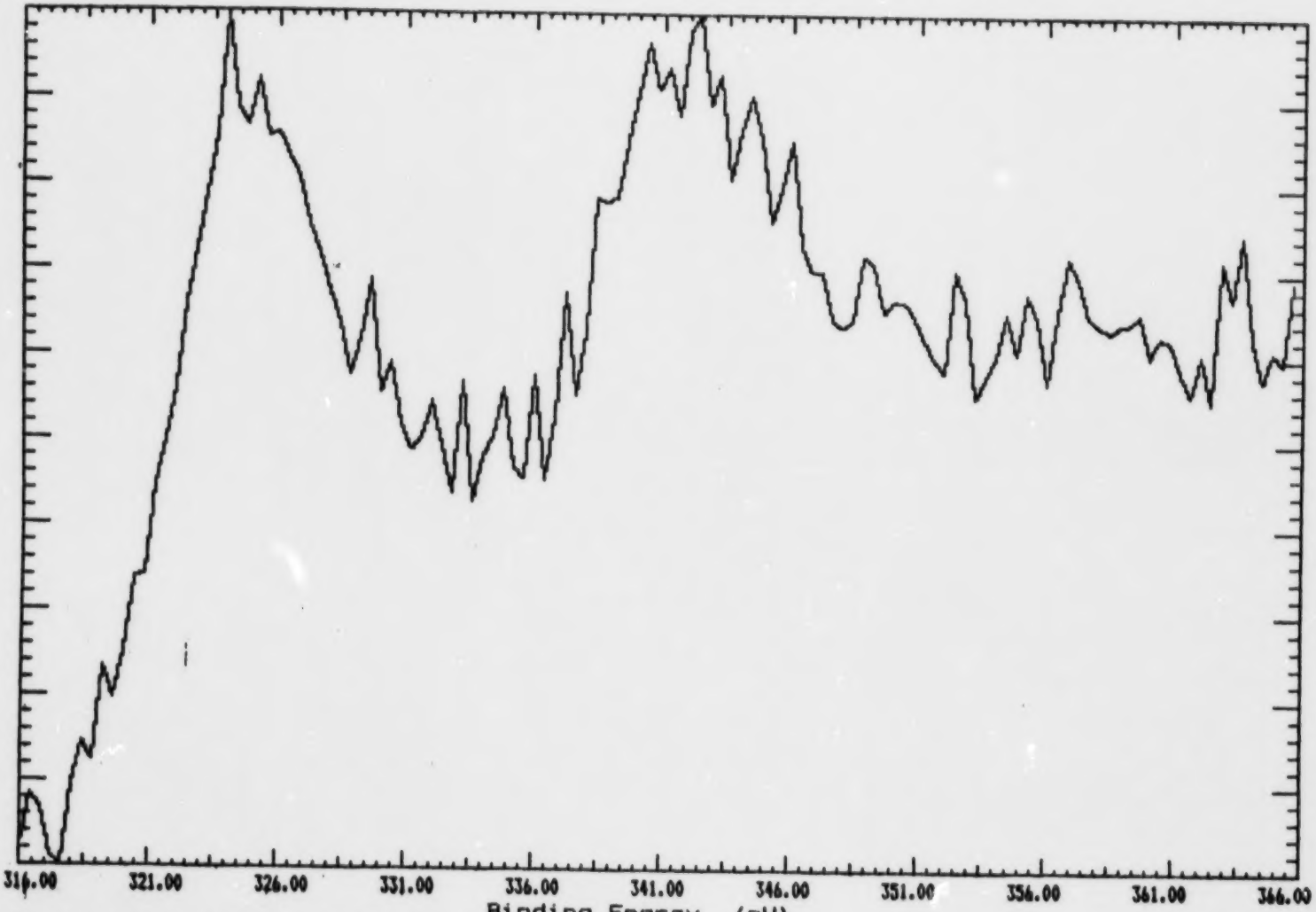
Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 8060
Step Size = 0.10 eV. 400 Scans of 200 channels at 50 ms per chan



GL-4-185B REDUIT CM 15D/H MG300 C1 NR
OPT AL2P+MECA V=3*10-8
16H15 17 MAI 90

ASA54 Region 3 PT4D VG SCIENTIFIC

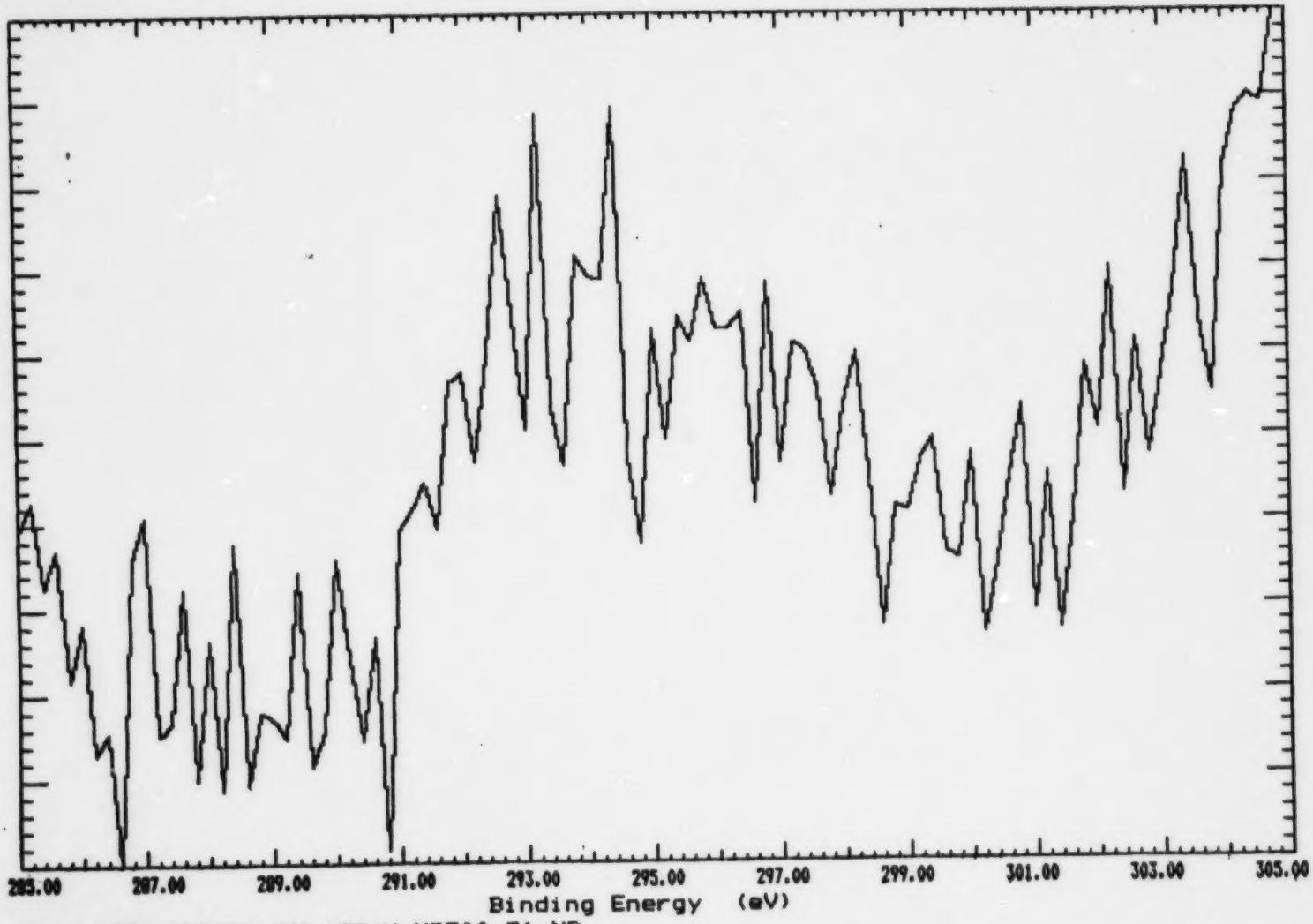
Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 173
Step Size = 0.40 eV. 1000 Scans of 125 channels at 50 ms per chan



GL-4-185B REDUIT CM 15D/H MG300 C1 NR
OPT AL2P+MECA V=3*10-8
16H15 17 MAI 90

ASA54 Region 4 C1S VG SCIENTIFIC

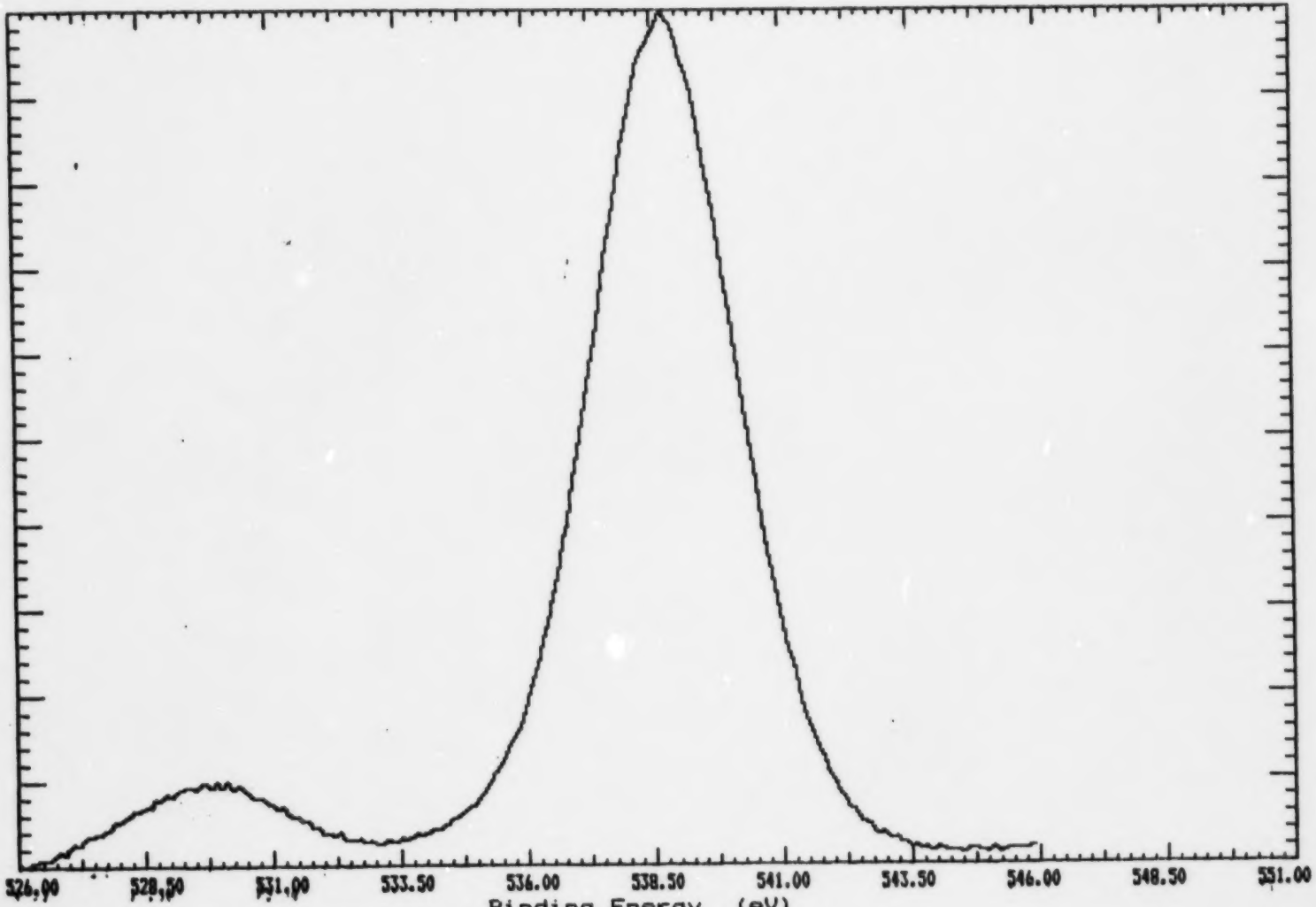
Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 266
Step Size = 0.20 eV. 75 Scans of 100 channels at 50 ms per chan



GL-4-185B REDUIT CM 15D/H MG300 C1 NR
OPT AL2P+MECA V=3*10-8
16H15 17 MAI 90

ASA54 Region 5 O1S VG SCIENTIFIC

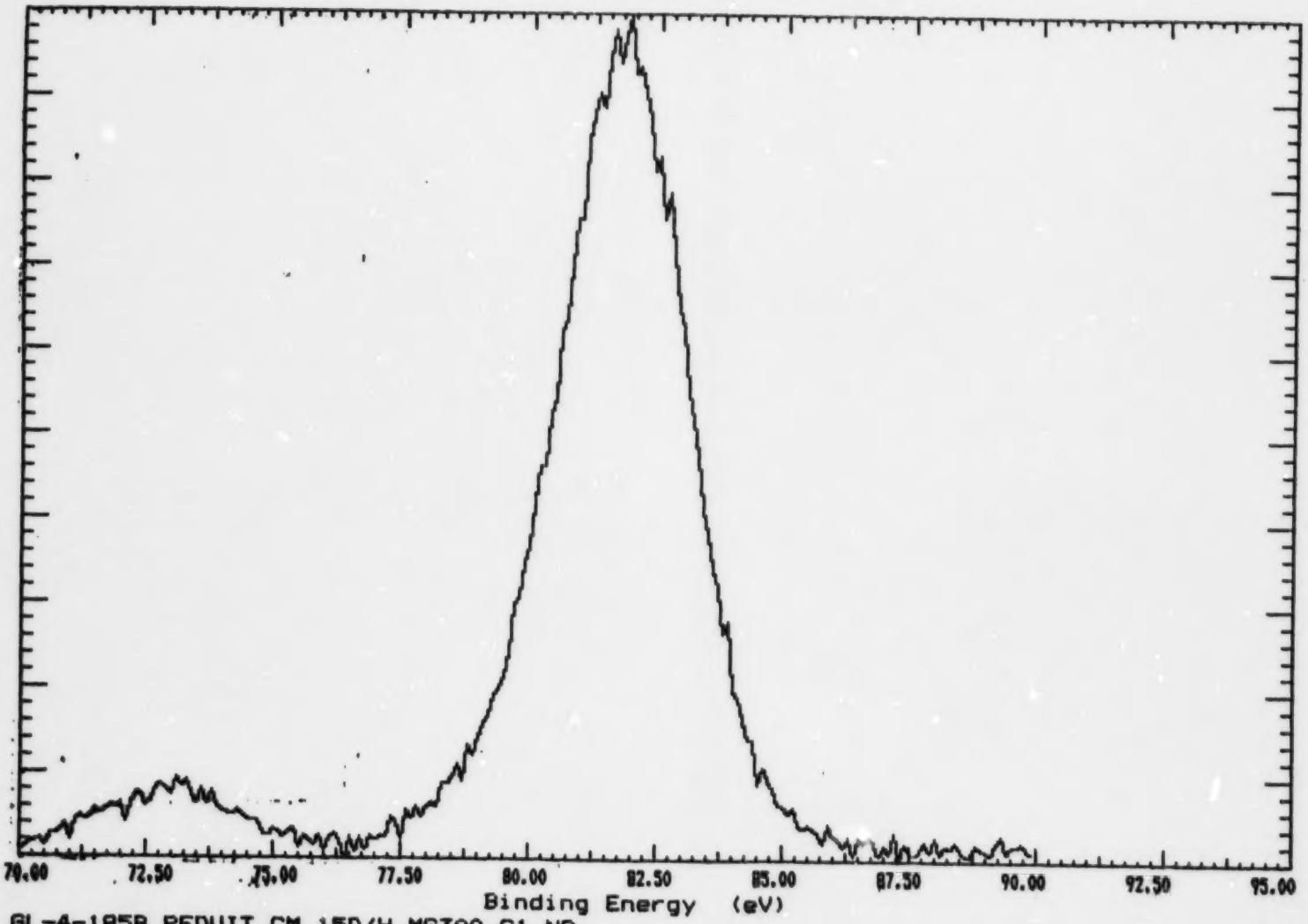
Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 42432
Step Size = 0.10 eV. 15 Scans of 200 channels at 50 ms per chan



GL-4-185B REDUIT CM 15D/H MG300 C1 NR
OPT AL2P+MECA V=3*10-8
16H15 17 MAI 90

ASA54 Region 6 AL2P VG SCIENTIFIC

Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 8203
Step Size = 0.10 eV. 5 Scans of 200 channels at 50 ms per chan



GL-4-185B REDUIT CM 15D/H MG300 C1 NR
OPT AL2P+MECA V=3*10-8
16H15 17 MAI 90

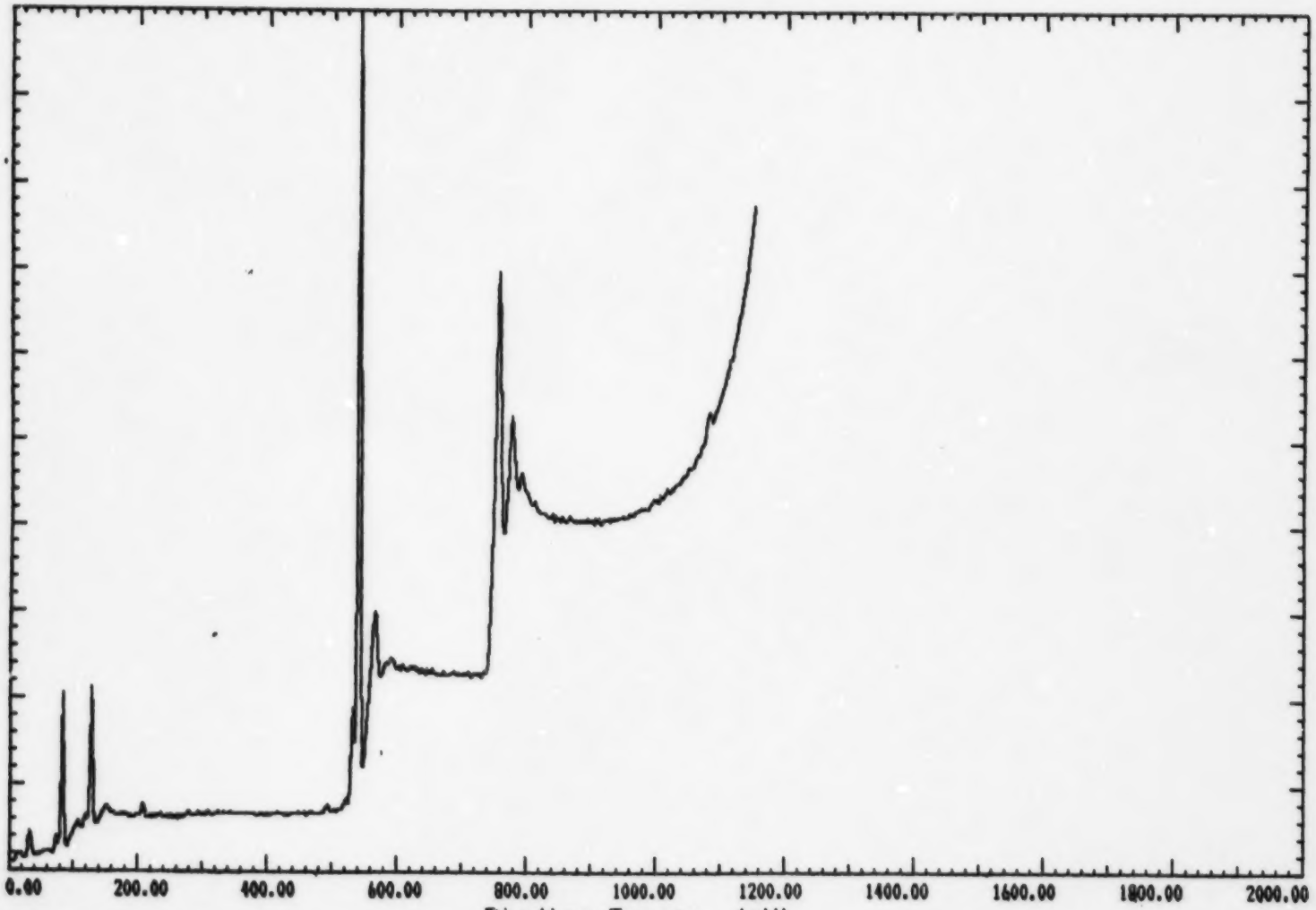
Pt/Alumina

Sample No. 185B (0.96% Pt)

REDUCED AND GROUND

ASA55 Region 1 SURVEY VG SCIENTIFIC

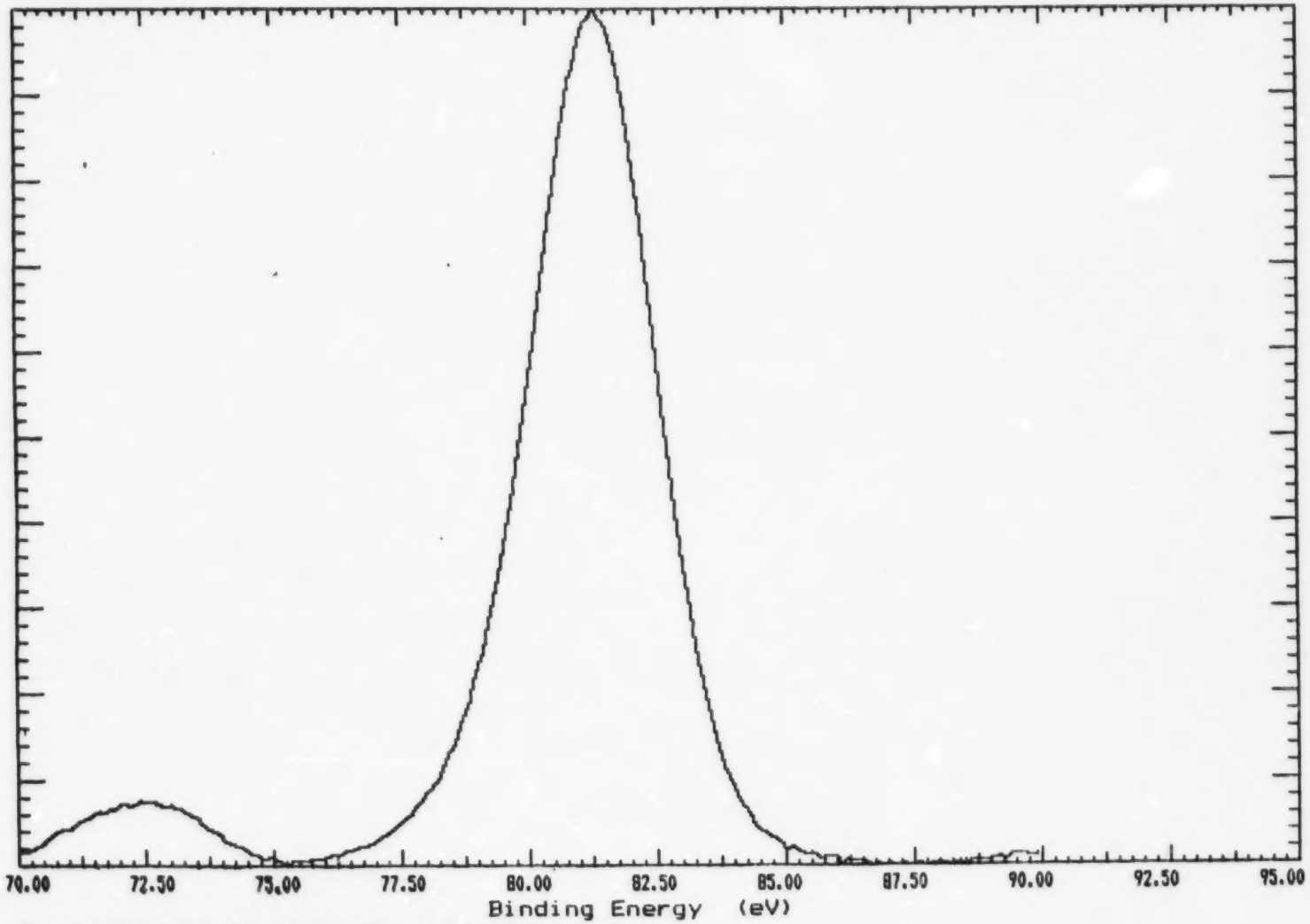
Mg XPS Analyser Energy = 50 eV Max Plotted Count Rate = 214927
Step Size = 1.00 eV. 5 Scans of 1150 channels at 50 ms per chan



GL-4-185B REDUIT BROYE CM 15D/H MG300 NR
C1 OPT AL2P+MECA V=1.5*10-7
9H00 18MAI 90

ASA55 Region 2 AL2P VG SCIENTIFIC

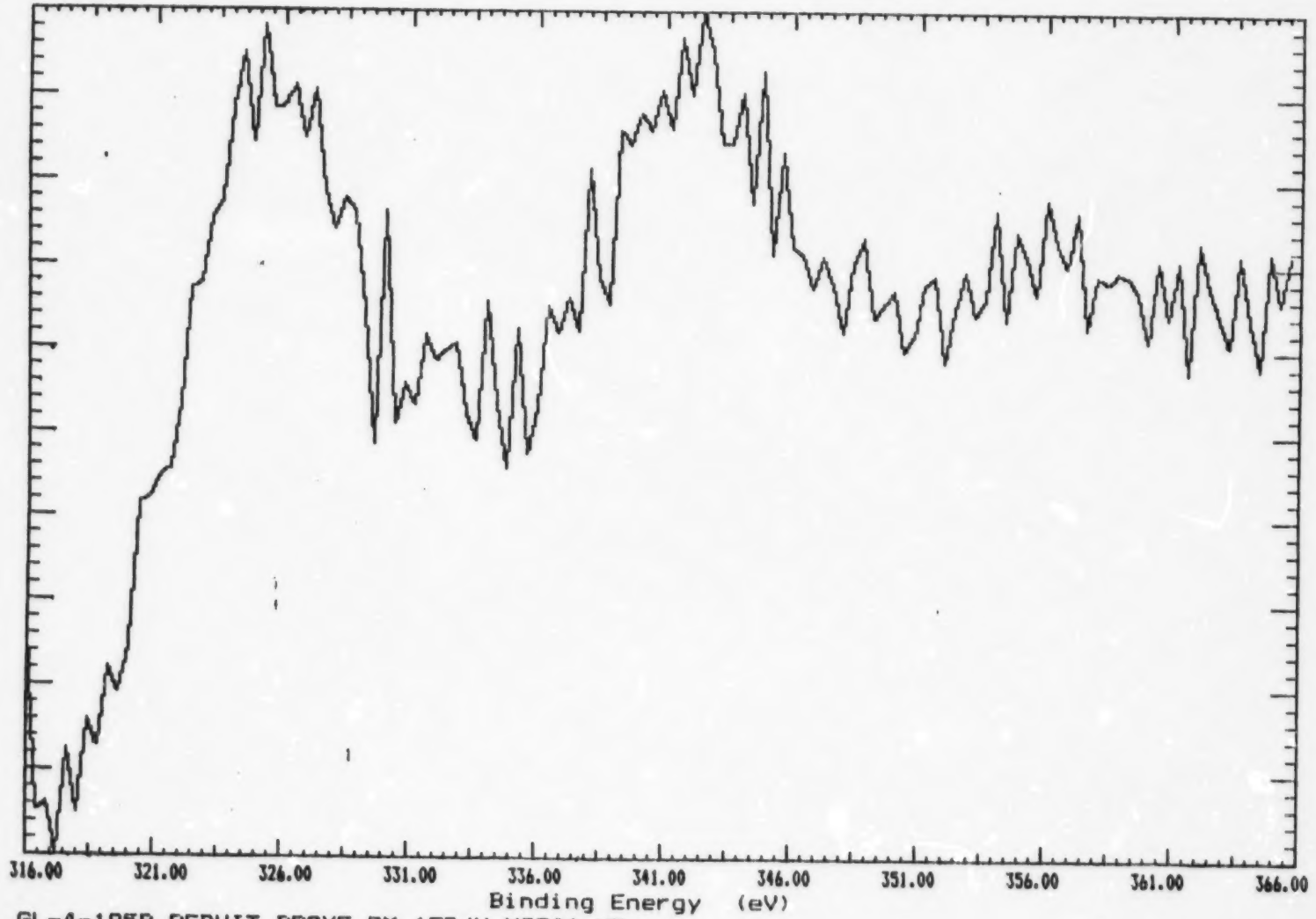
Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 9250
Step Size = 0.10 eV. 150 Scans of 200 channels at 50 ms per chan



GL-4-185B REDUIT BROYE CM 15D/H MG300 NR
C1 OPT AL2P+MECA V=1.5*10-7
9H00 18MAI 90

ASA55 Region 3 PT4D VG SCIENTIFIC

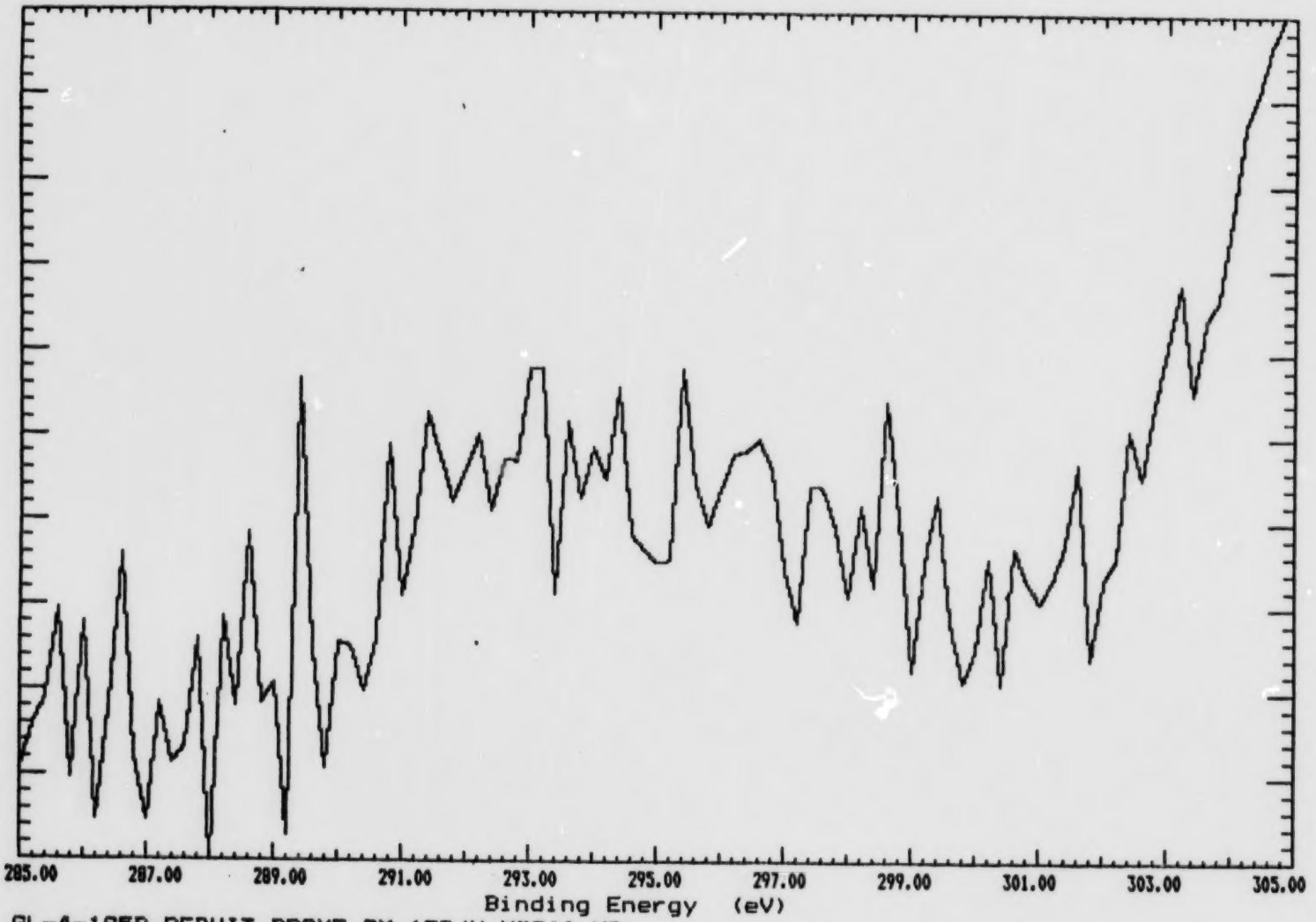
Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 166
Step Size = 0.40 eV. 1160 Scans of 125 channels at 50 ms per chan



GL-4-185B REDUIT BROYE CM 15D/H MG300 NR
C1 OPT AL2P+MECA V=1.5*10-7
9H00 18MAI 90

ASA55 Region 4 C1S VG SCIENTIFIC

Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 376
Step Size = 0.20 eV. 75 Scans of 100 channels at 50 ms per chan

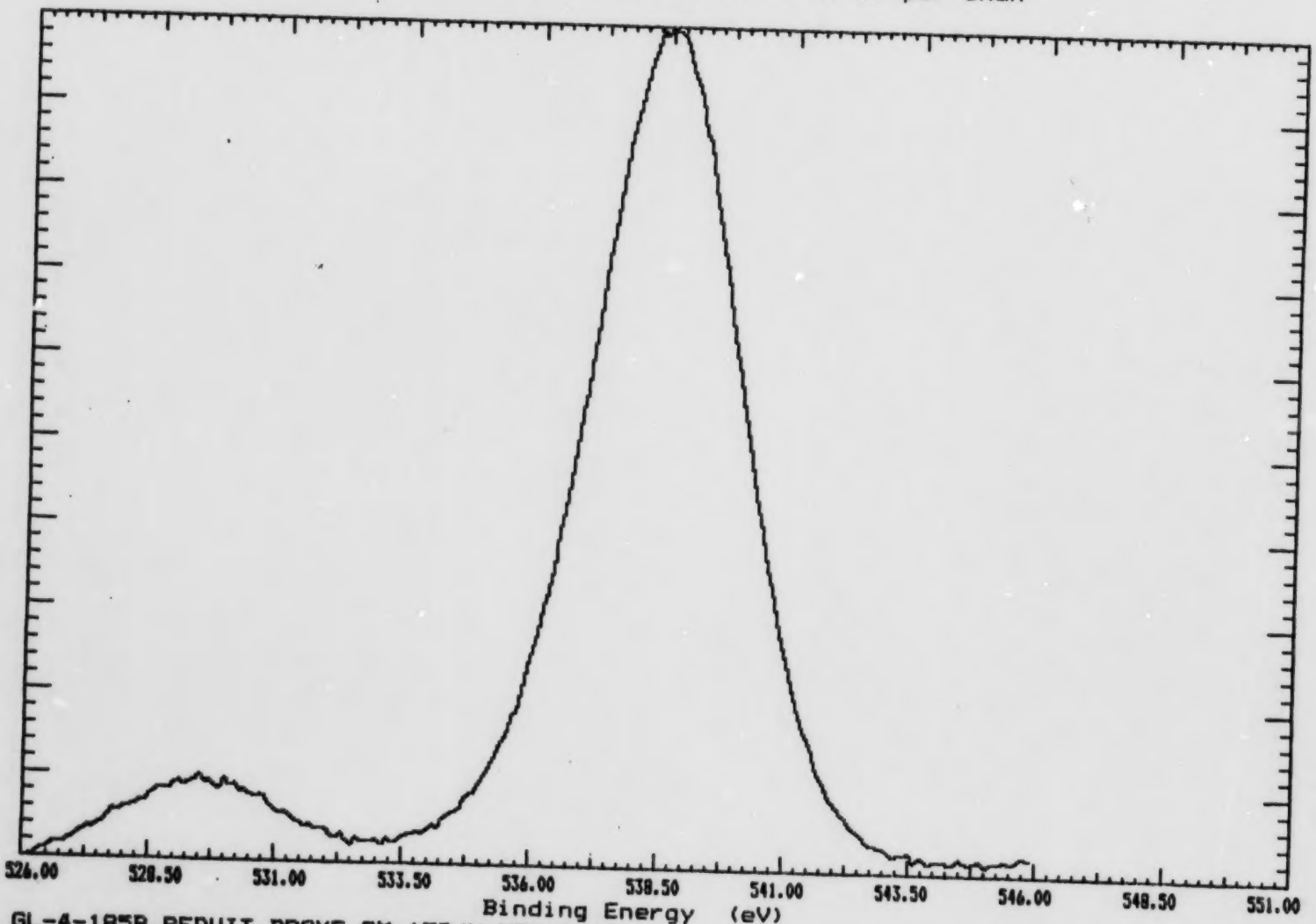


GL-4-185B REDUIT BROYE CM 15D/H MG300 NR
C1 OPT AL2P+MECA V=1.5*10-7
9H00 18MAI 90

ASA55 Region 5 01S

VG SCIENTIFIC

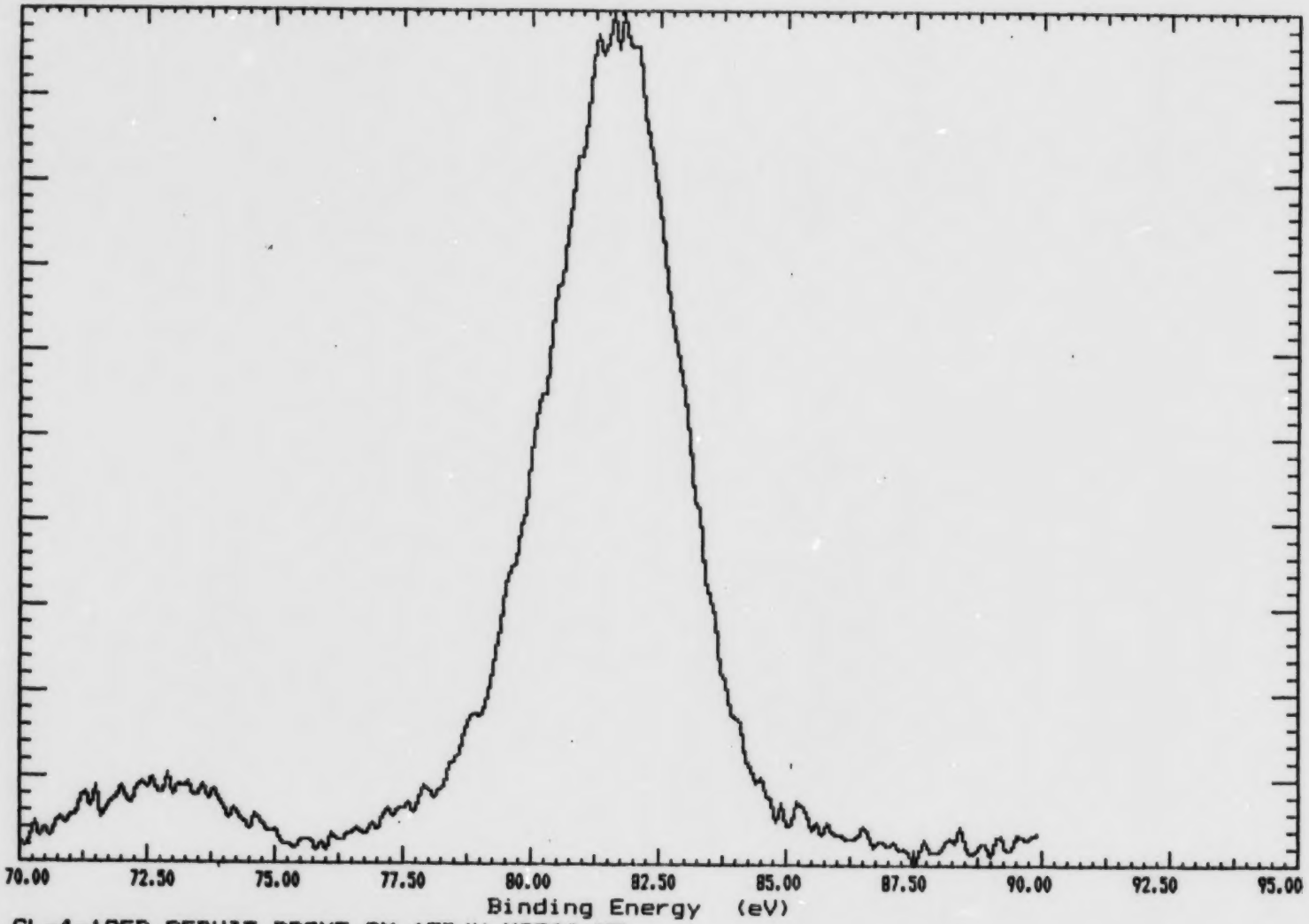
Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 51345
Step Size = 0.10 eV. 10 Scans of 200 channels at 50 ms per chan



GL-4-185B REDUIT BROYE CM 15D/H MG300 NR
C1 OPT AL2P+MECA V=1.5*10-7
9H00 18MAI 90

ASA55 Region 6 AL2P VG SCIENTIFIC

Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 9787
Step Size = 0.10 eV. 5 Scans of 200 channels at 50 ms per chan



GL-4-185B REDUIT BROYE CM 15D/H MG300 NR
C1 OPT AL2P+MECA V=1.5*10-7
9H00 18MAI 90

Pt/Silica

Sample No. 186A (2.97% Pt)

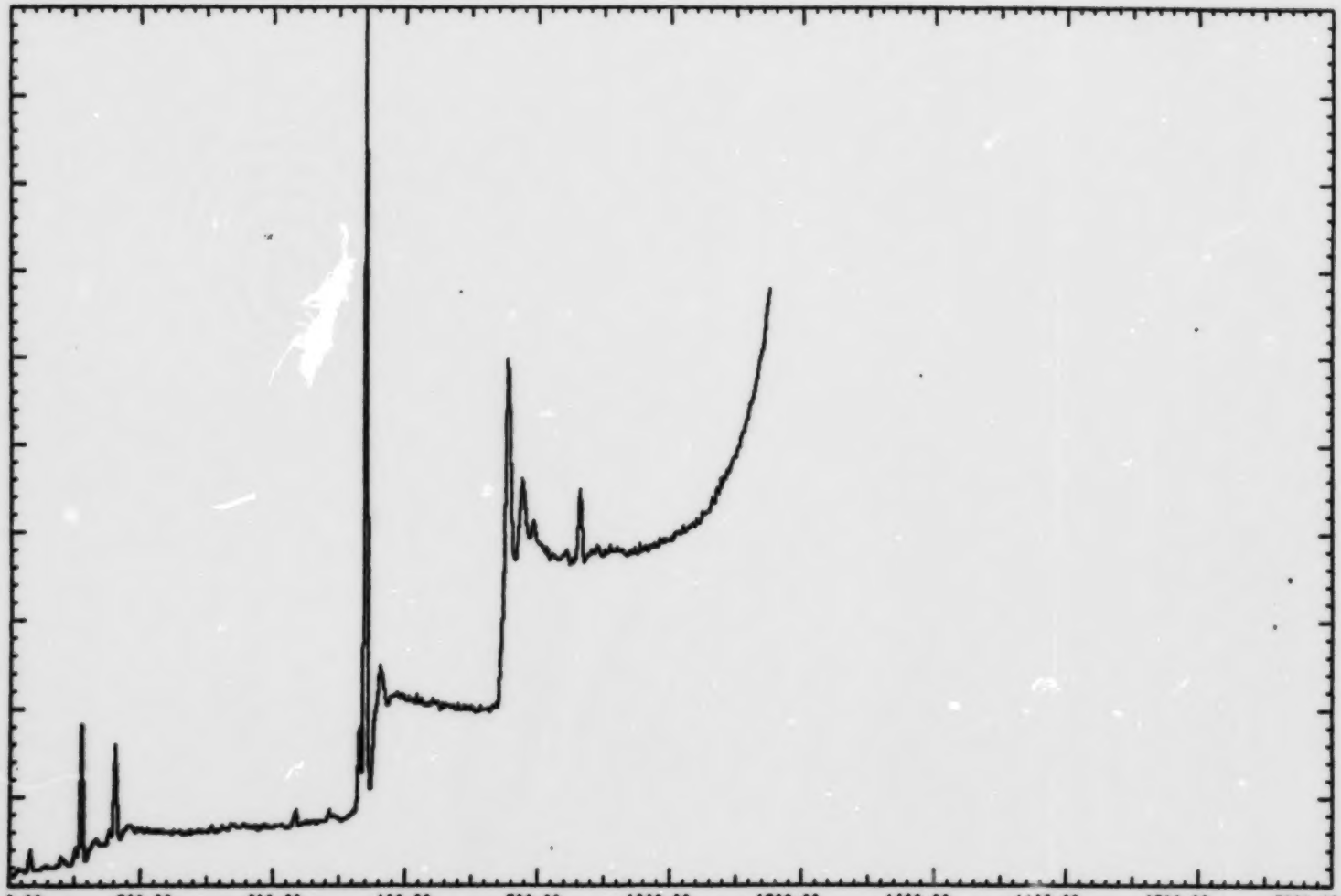
Pt/Silica

Sample No. 186A (2.97% Pt)

CALCINED

ASA38 Region 1 SURVEY VG SCIENTIFIC

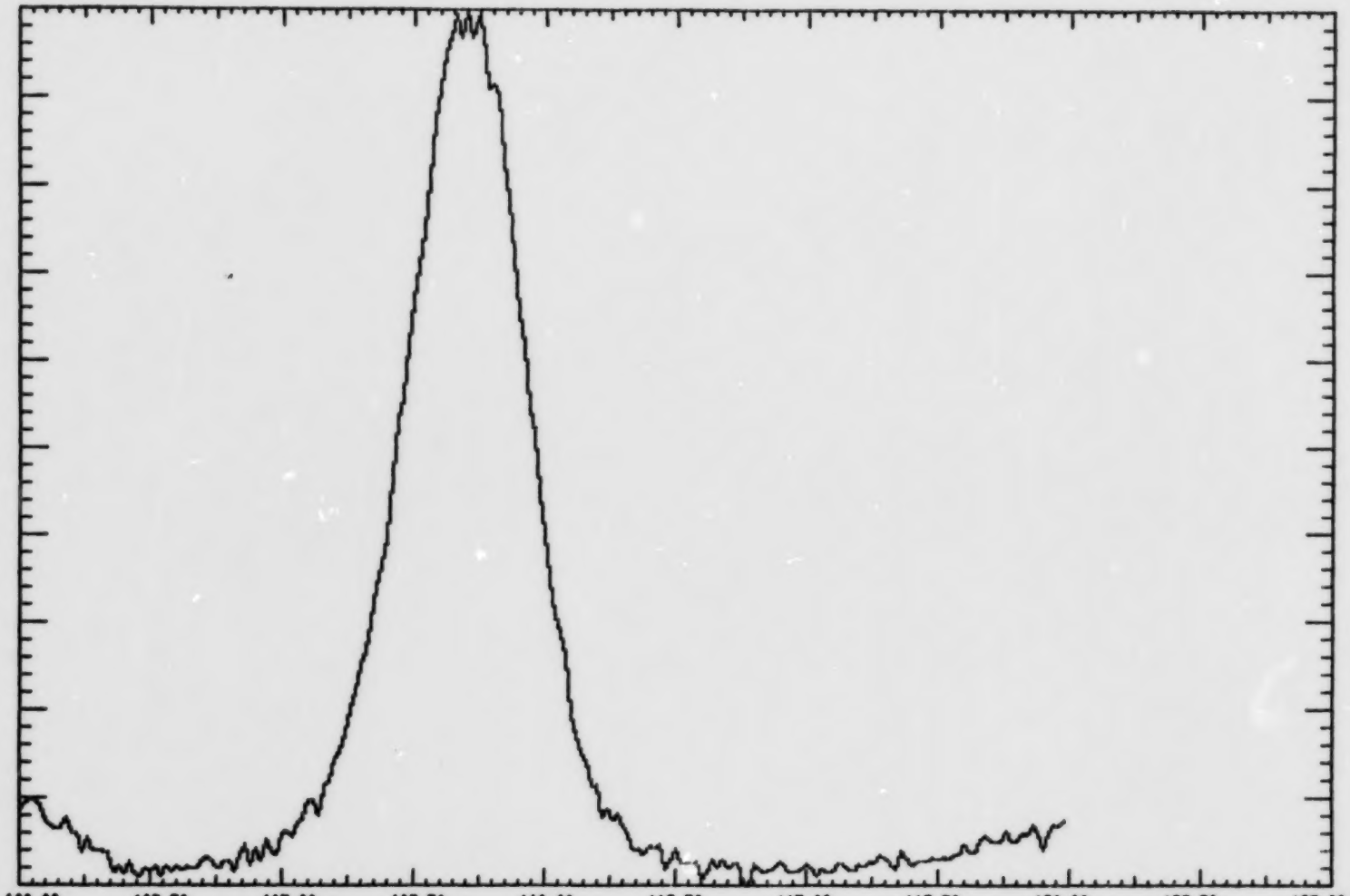
Mg XPS Analyser Energy = 50 eV Max Plotted Count Rate = 89103
Step Size = 1.00 eV. 5 Scans of 1150 channels at 50 ms per chan



AS. GL-4-186-A CM 15D/H OPT.SI2P
MG300 NR C1
29 MARS 90 12H25

ASA38 Region 2 SI2P VG SCIENTIFIC

Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 3017
Step Size = 0.10 eV. 25 Scans of 200 channels at 50 ms per chan



AS. GL-4-186-A CM 15D/H OPT.SI2P
MG300 NR C1
29 MARS 90 12H25

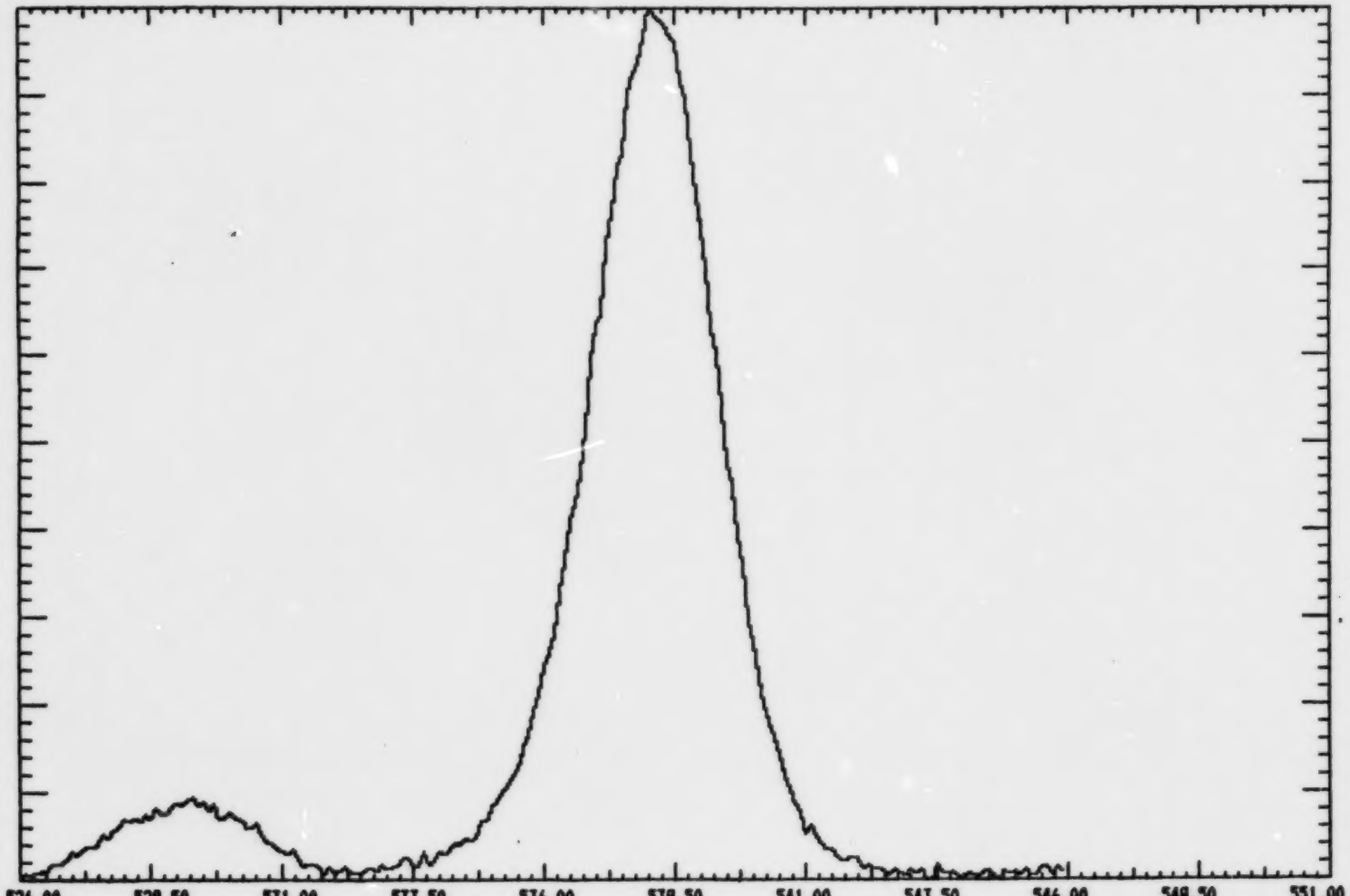
ASA38 Region 3 PT4F VG SCIENTIFIC

Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 152
Step Size = 0.10 eV. 850 Scans of 200 channels at 50 ms per chan

AS. GL-4-186-A CM 15D/H OPT.SI2P
M8300 NR C1
29 MARS 90 12H25

ASA38 Region 4 O1S VG SCIENTIFIC

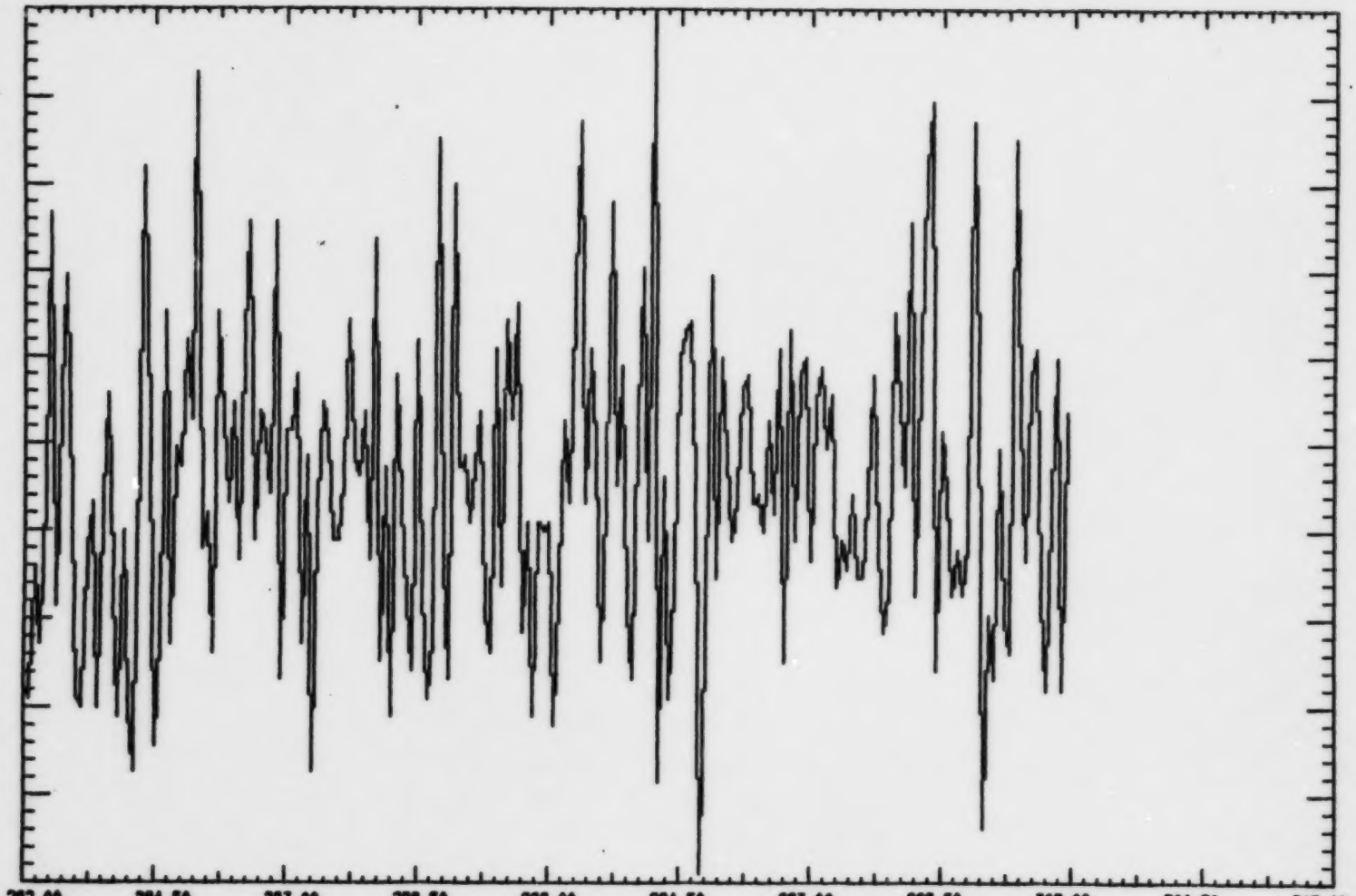
Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 16605
Step Size = 0.10 eV. 8 Scans of 200 channels at 50 ms per chan



AS. BL-4-186-A CM 15D/H OPT.SI2P
MG300 NR C1
29 MARS 90 12H25

ASA38 Region 5 C1S VG SCIENTIFIC

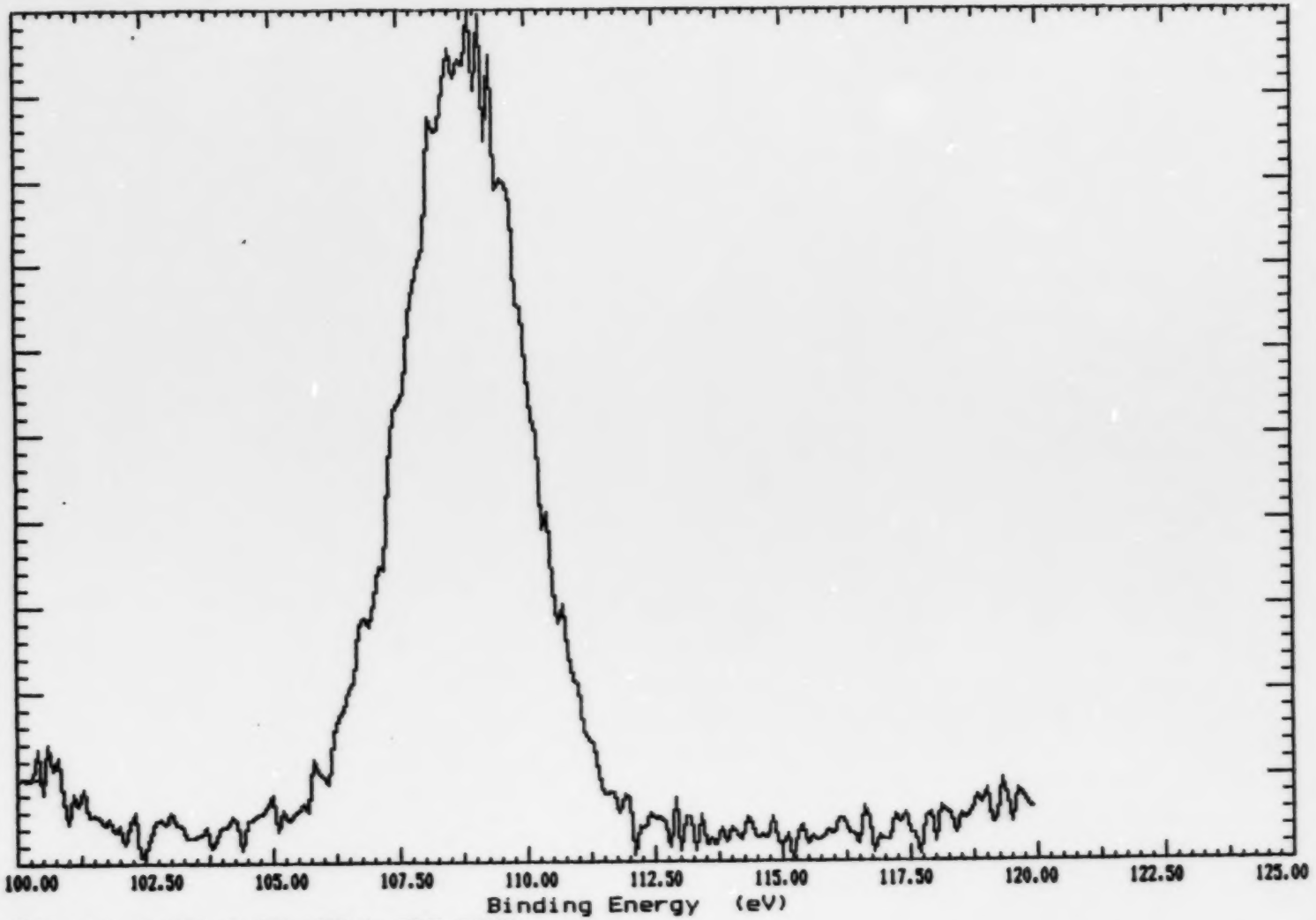
Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 379
Step Size = 0.10 eV. 5 Scans of 200 channels at 50 ms per chan



AG. GL-4-186-A CM 15D/H OPT.SI2P
MG300 NR C1
29 MARS 90 12H25

ASA38 Region 6 SI2P VG SCIENTIFIC

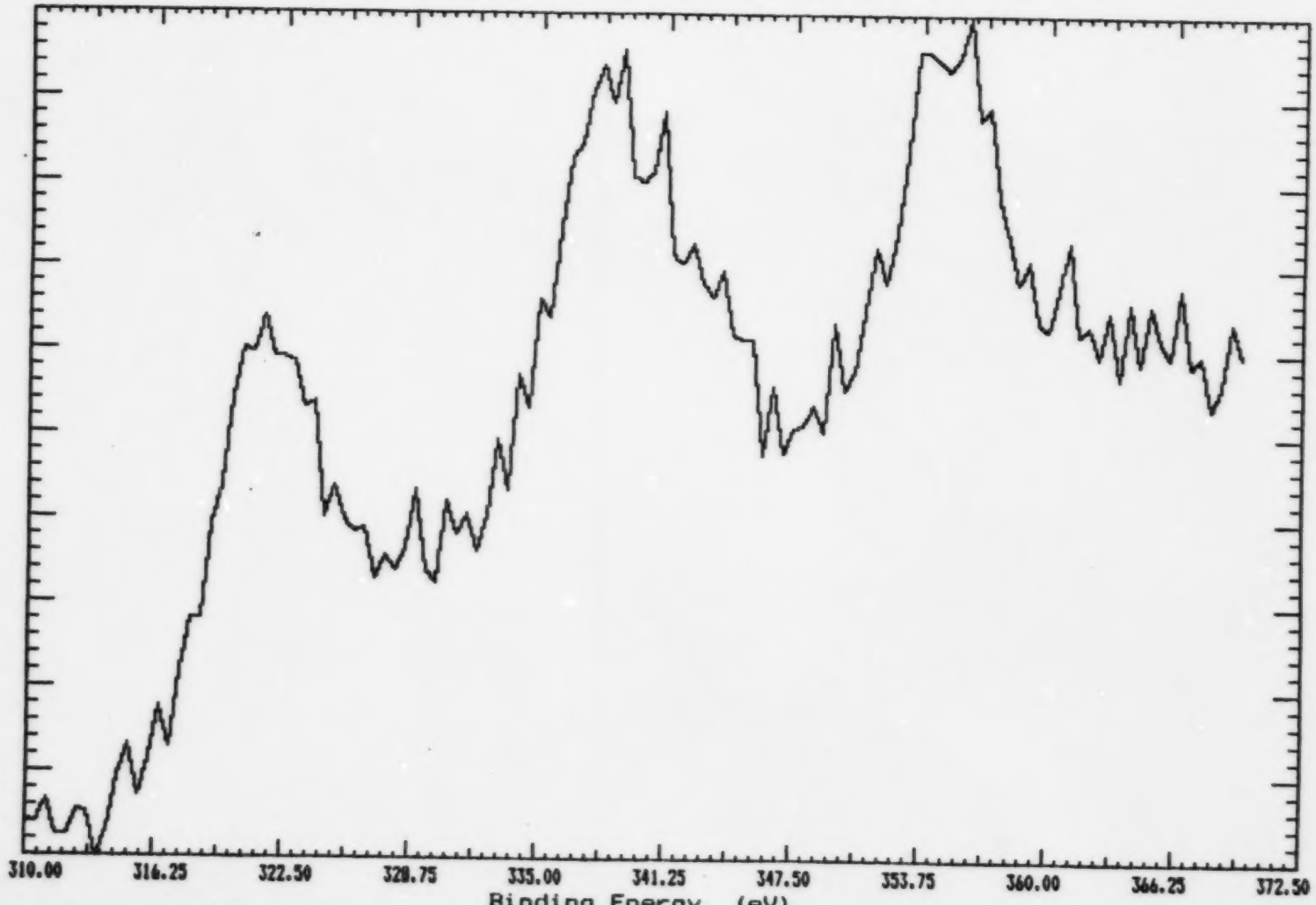
Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 3083
Step Size = 0.10 eV. 5 Scans of 200 channels at 50 ms per chan



AS. GL-4-186-A CM 15D/H OPT.SI2P
MG300 NR C1
29 MARS 90 12H25

ASA38A Region 1 PT4D VG SCIENTIFIC

Mg XPS Analyser Energy = 50 eV Max Plotted Count Rate = 612
Step Size = 0.50 eV. 200 Scans of 120 channels at 50 ms per chan



GL-4-186-A IDEM 38 SAUF PT 4D
MMES CONDS.
29 AMRS 90 16H08

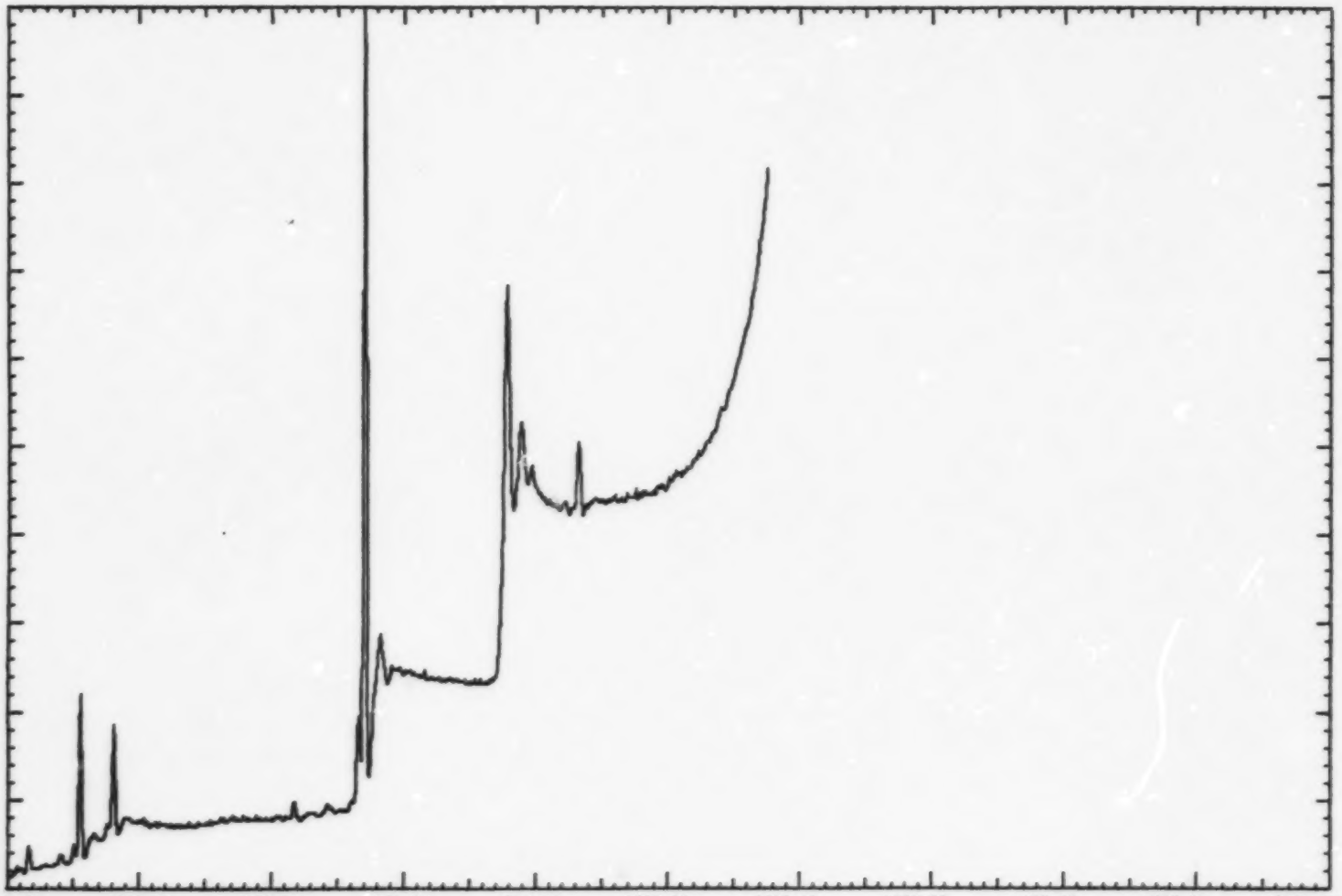
Pt/Silica

Sample No. 186A (2.97% Pt)

CALCINED AND GROUND

ASA39 Region 1 SURVEY VG SCIENTIFIC

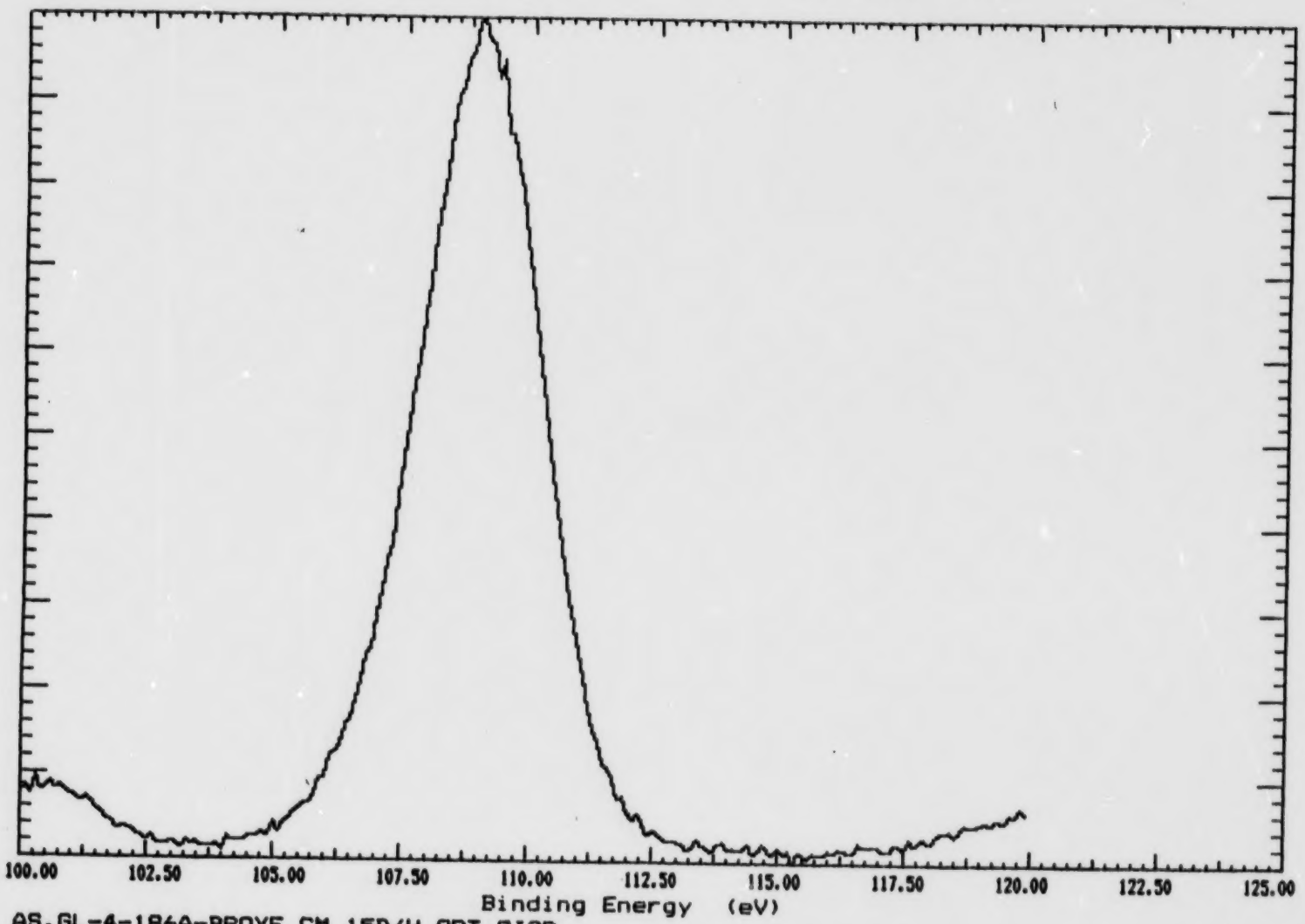
Mg XPS Analyser Energy = 50 eV Max Plotted Count Rate = 173479
Step Size = 1.00 eV. 5 Scans of 1150 channels at 50 ms per chan



AS.GL-4-186A-BROYE CM 15D/H OPT.SI2P
MG300 NR C1
30 MARS 90 10H45

ASA39 Region 2 SI2P VG SCIENTIFIC

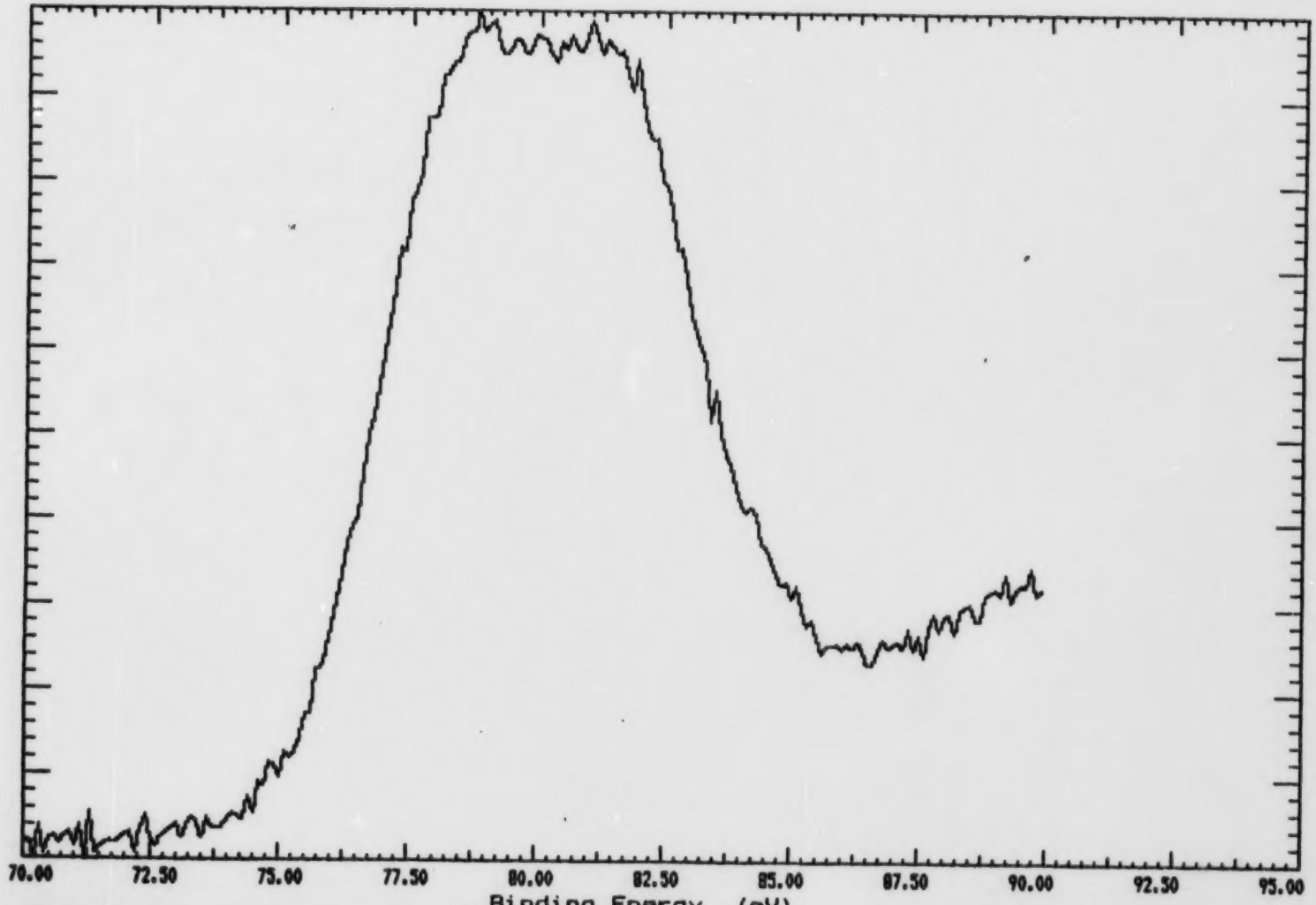
Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 7432
Step Size = 0.10 eV. 25 Scans of 200 channels at 50 ms per chan



AS.GL-4-186A-BROYE CM 15D/H OPT.SI2P
MG300 NR C1 .
30 MARS 90 10H45

ASA39 Region 3 PT4F VG SCIENTIFIC

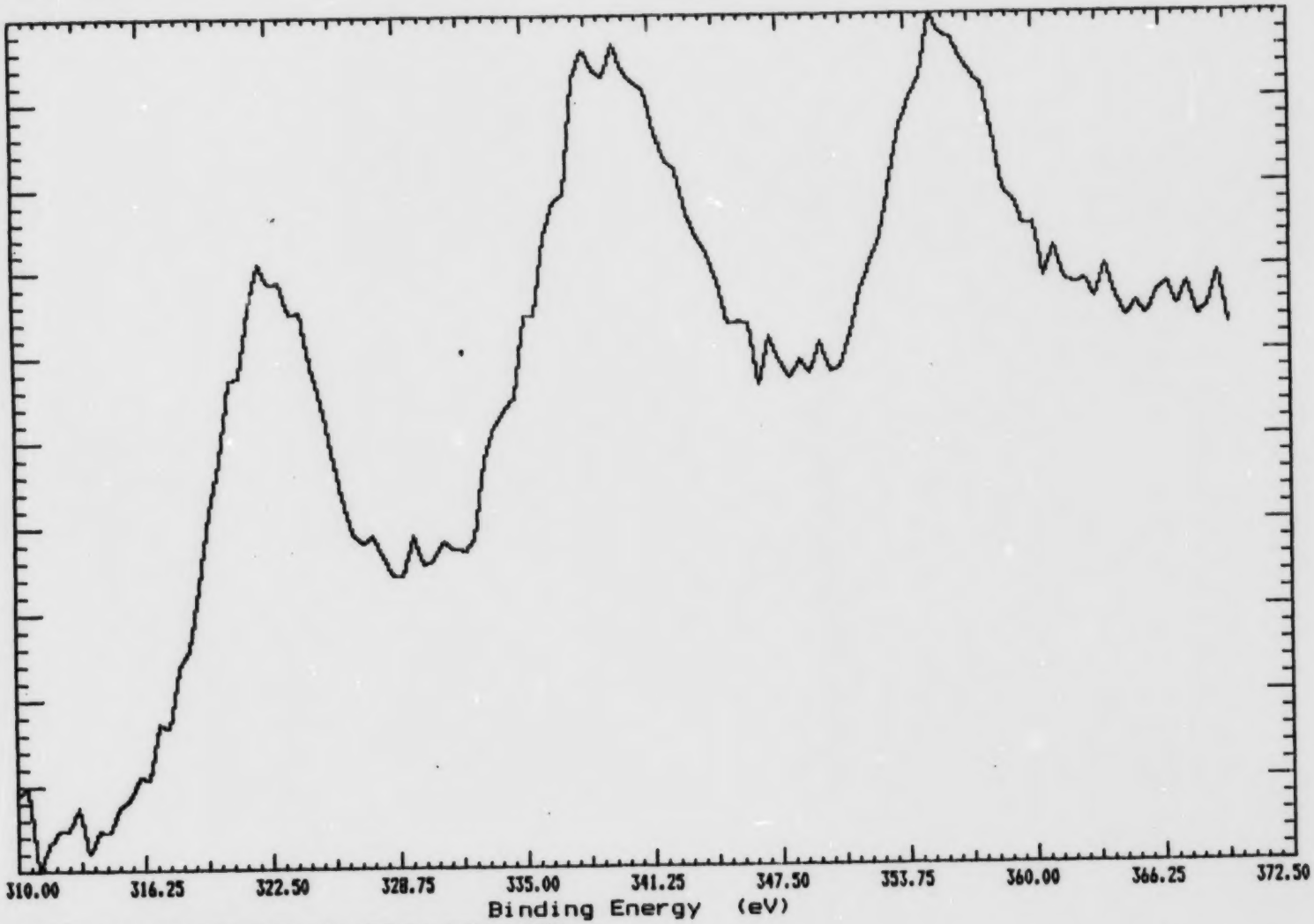
Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 399
Step Size = 0.10 eV. 876 Scans of 200 channels at 50 ms per chan



AS.GL-4-186A-BROYE CM 15D/H OPT.SI2P
MG300 NR C1
30.MARS 90 10H45

ASA39 Region 4 PT4D VG SCIENTIFIC

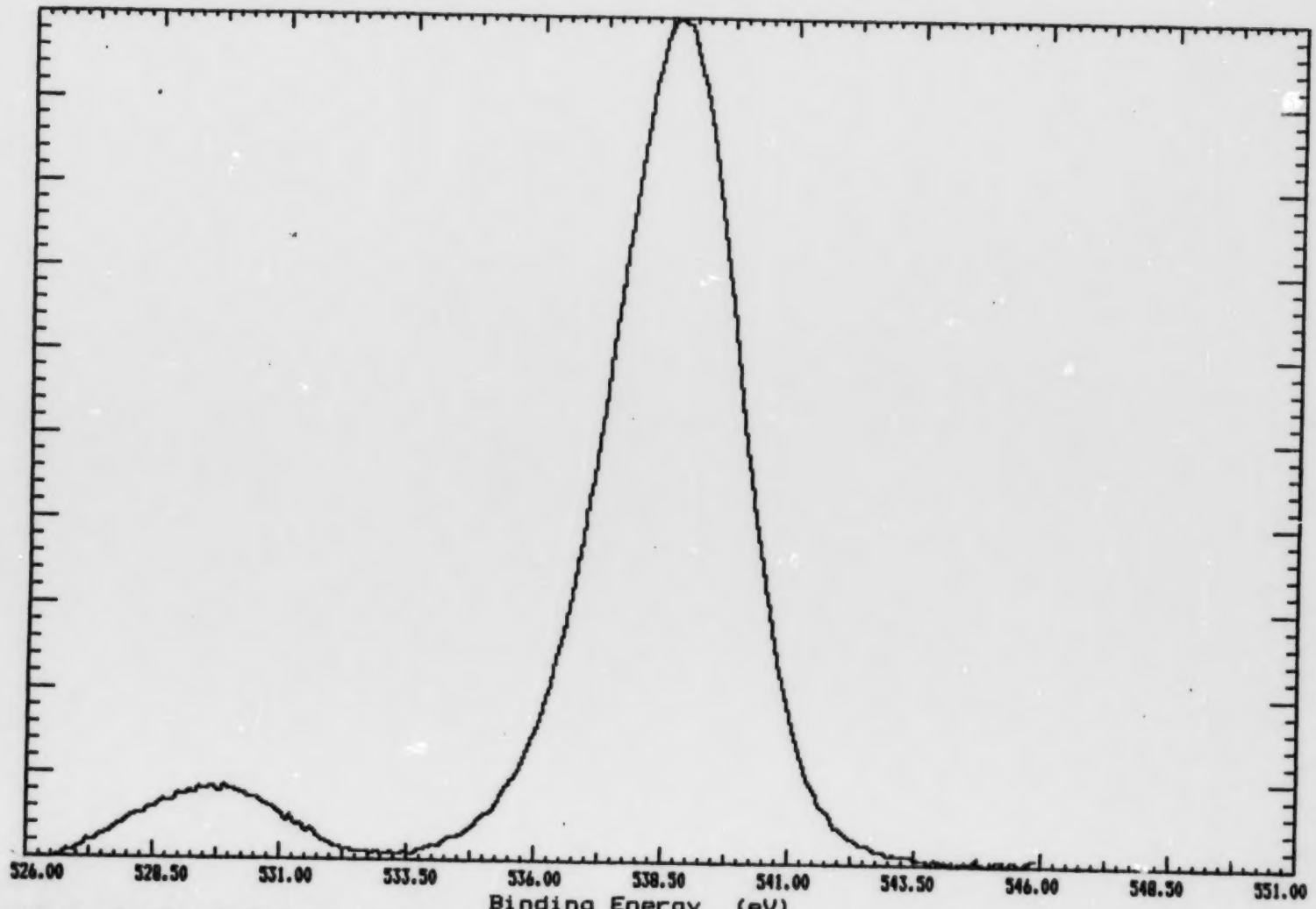
Mg XPS Analyser Energy = 50 eV Max Plotted Count Rate = 1311
Step Size = 0.50 eV. 450 Scans of 120 channels at 50 ms per chan



AS.GL-4-186A-BROYE CM 15D/H OPT.SI2P
MG300 NR C1
30 MARS 90 10H45

ASA39 Region 5 O1S VG SCIENTIFIC

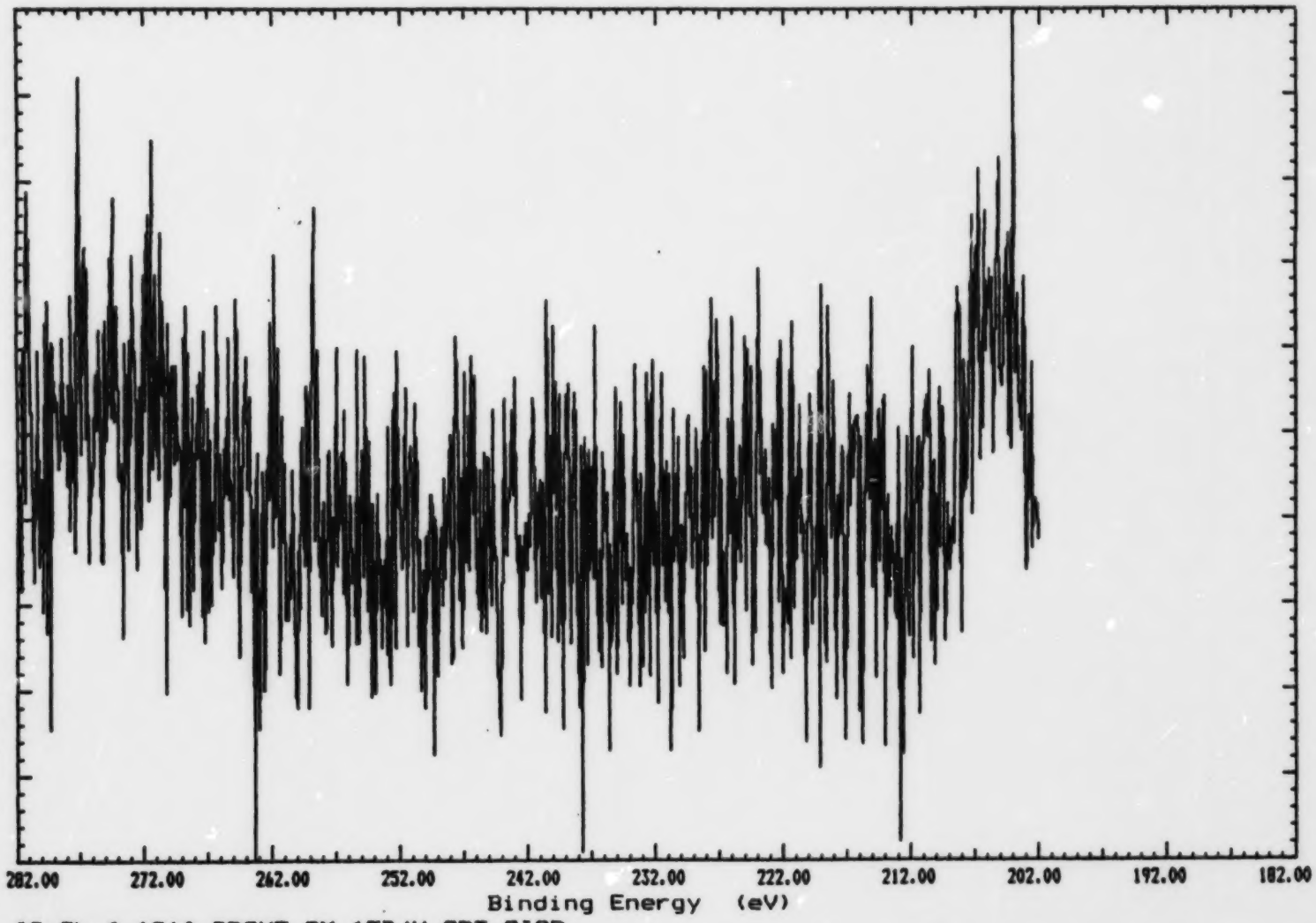
Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 38663
Step Size = 0.10 eV. 15 Scans of 200 channels at 50 ms per chan



AS.GL-4-186A-BROYE CM 15D/H OPT.SI2P
MG300 NR C1
30 MARS 90 10H45

ASA39 Region 6 C1S VG SCIENTIFIC

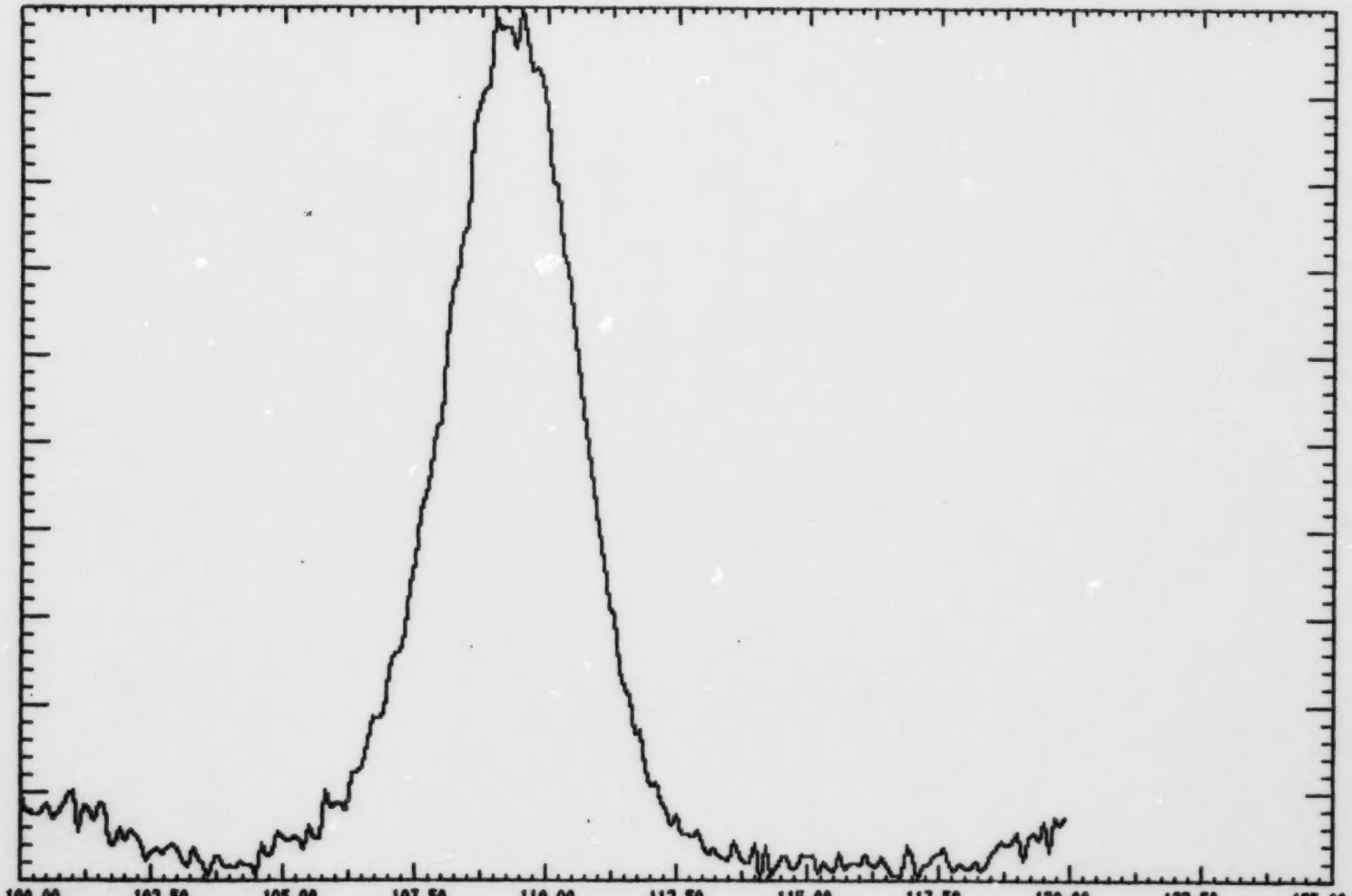
Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 641
Step Size = 0.10 eV. 10 Scans of 800 channels at 50 ms per chan



AS.GL-4-186A-BROYE CM 15D/H OPT.SI2P
MG300 NR C1
30 MARS 90 10H45

ASA39 Region 7 SI2P VG SCIENTIFIC

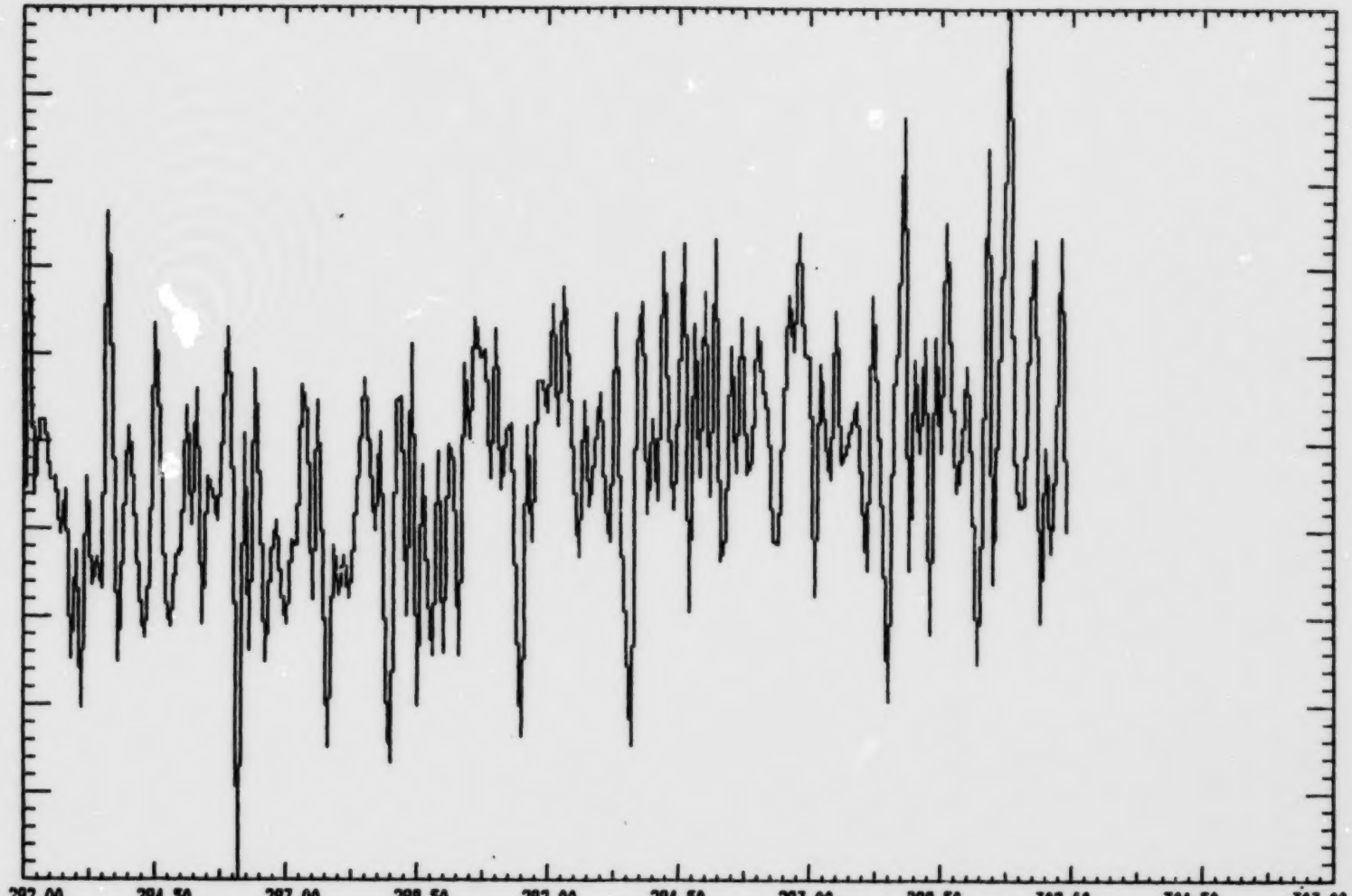
Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 7255
Step Size = 0.10 eV. 5 Scans of 200 channels at 50 ms per chan



AS.GL-4-186A-BROYE CM 15D/H OPT.SI2P
MG300 NR C1
30 MARS 90 10H45

ASA39A Region 1 C1S VG SCIENTIFIC

Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 418
Step Size = 0.10 eV. 16 Scans of 200 channels at 50 ms per chan



GL-4-186A BROYE REPRISE C1S
14H20 30 MARS 90
MEME COND QUE ASA39

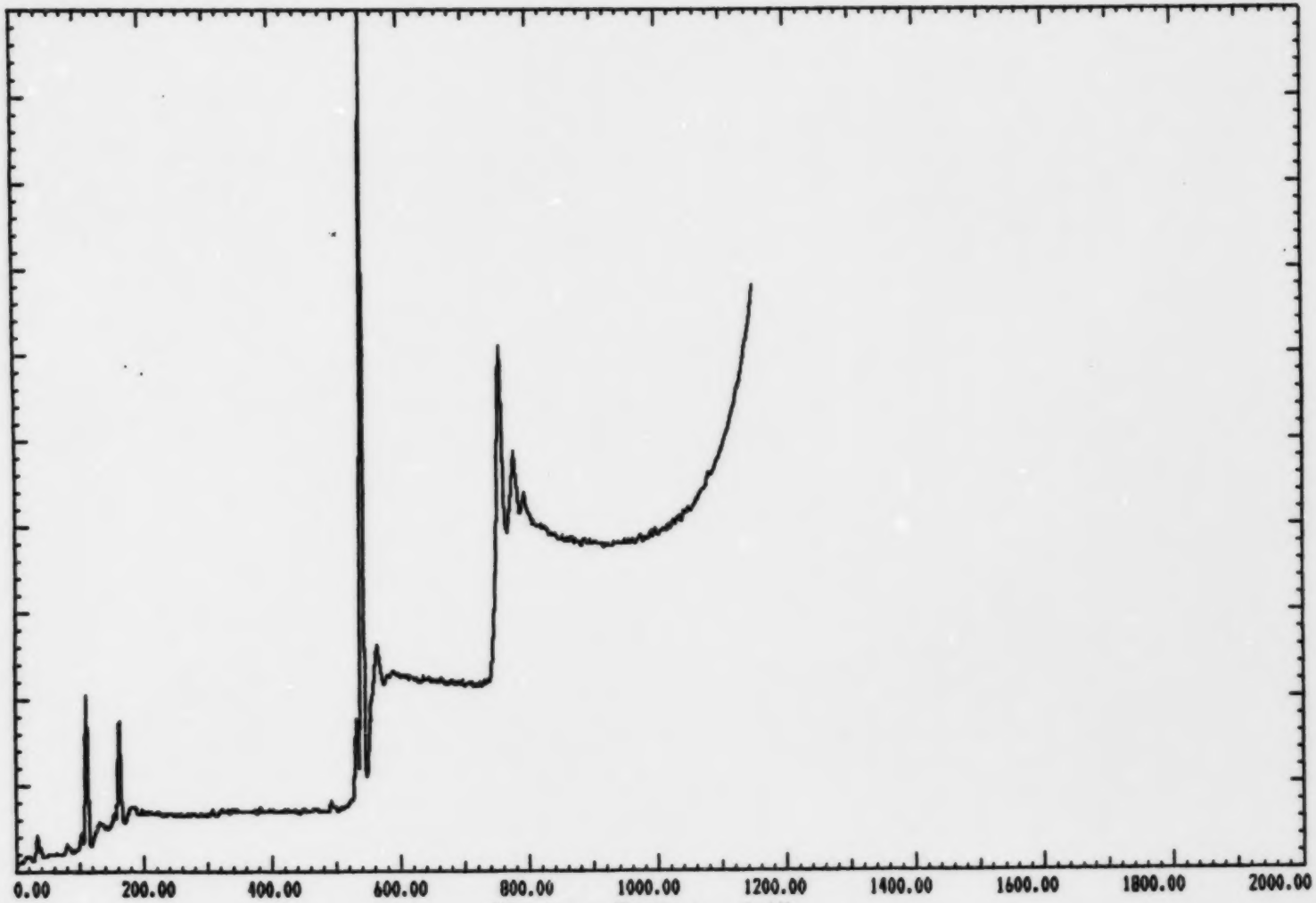
Pt/Silica

Sample No. 186A (2.97% Pt)

REDUCED

ASA46 Region 1 SURVEY VG SCIENTIFIC

Mg XPS Analyser Energy = 50 eV Max Plotted Count Rate = 178095
Step Size = 1.00 eV. 5 Scans of 1150 channels at 50 ms per chan

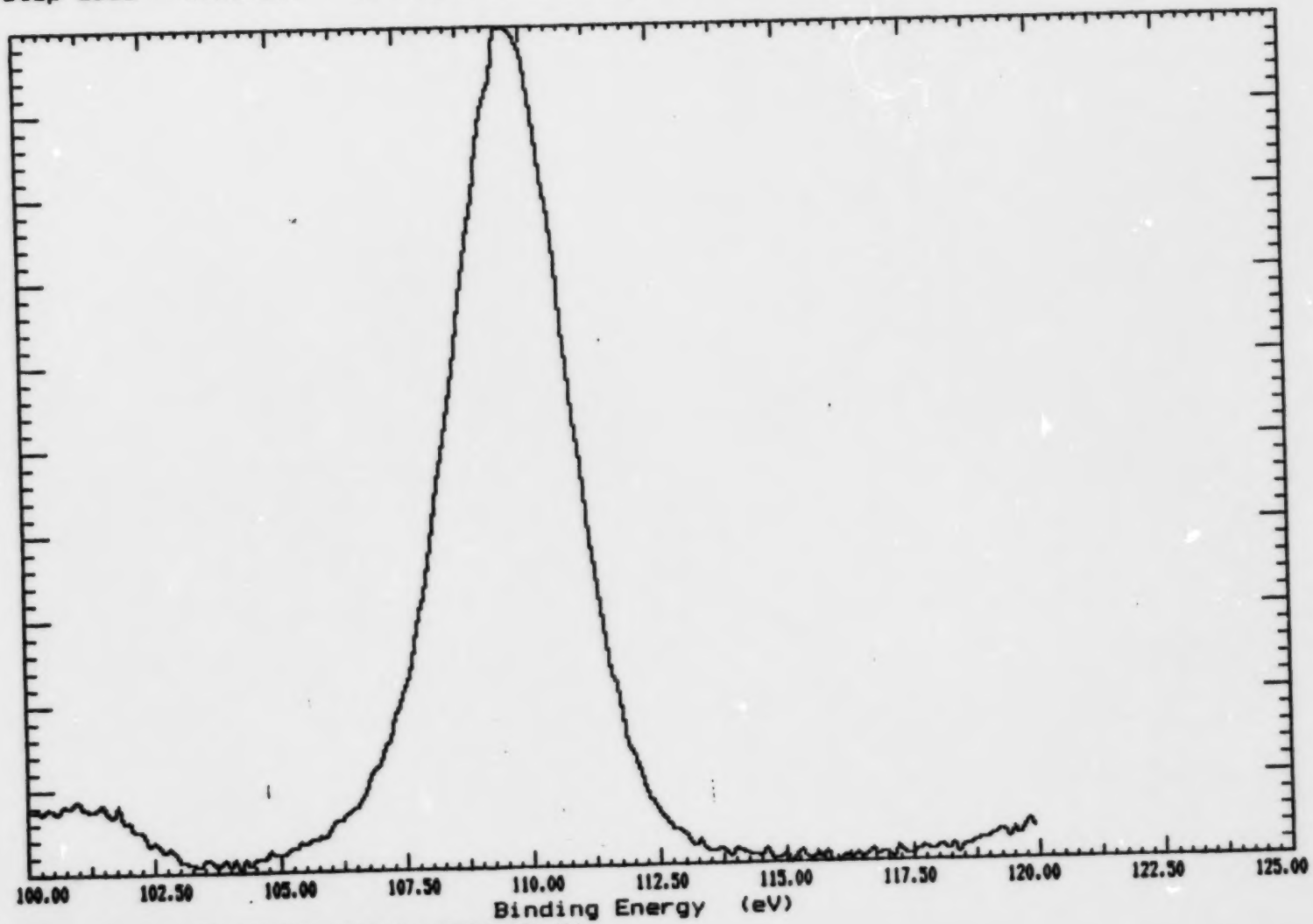


GL-4-186A REDUIT CM 15D/H MG300 NR C1
OPT SI2P+MECA V=8*10-8
9H40 11 MAI 90

ASA46 Region 2 SI2P

VG SCIENTIFIC

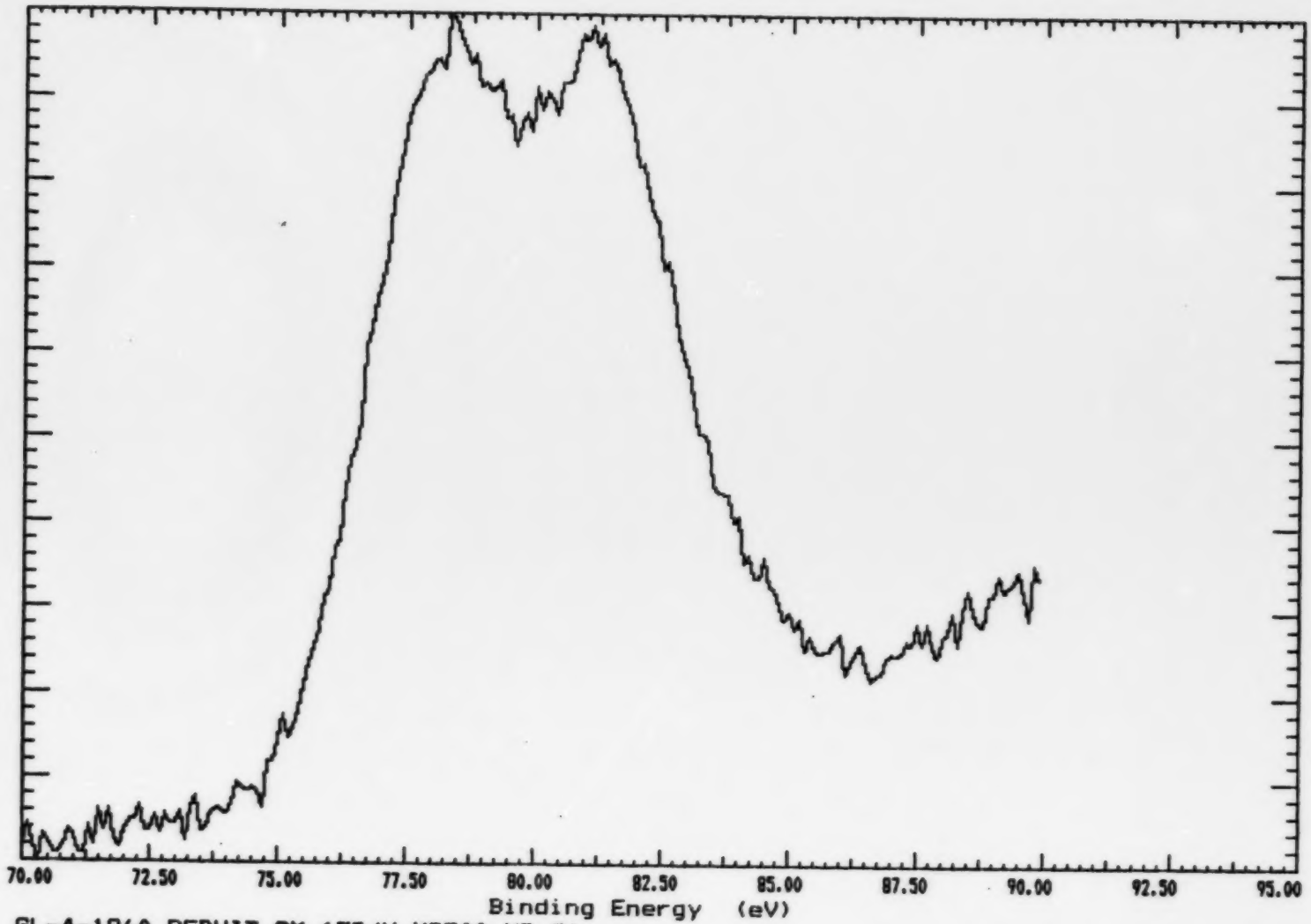
Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 7839
Step Size = 0.10 eV. 31 Scans of 200 channels at 50 ms per chan



GL-4-186A REDUIT CM 15D/H MG300 NR C1
OPT SI2P+MECA V=8*10-8
CHAO 11 MAI 90

ASA46 Region 3 PT4F VG SCIENTIFIC

Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 426
Step Size = 0.10 eV. 404 Scans of 200 channels at 50 ms per chan

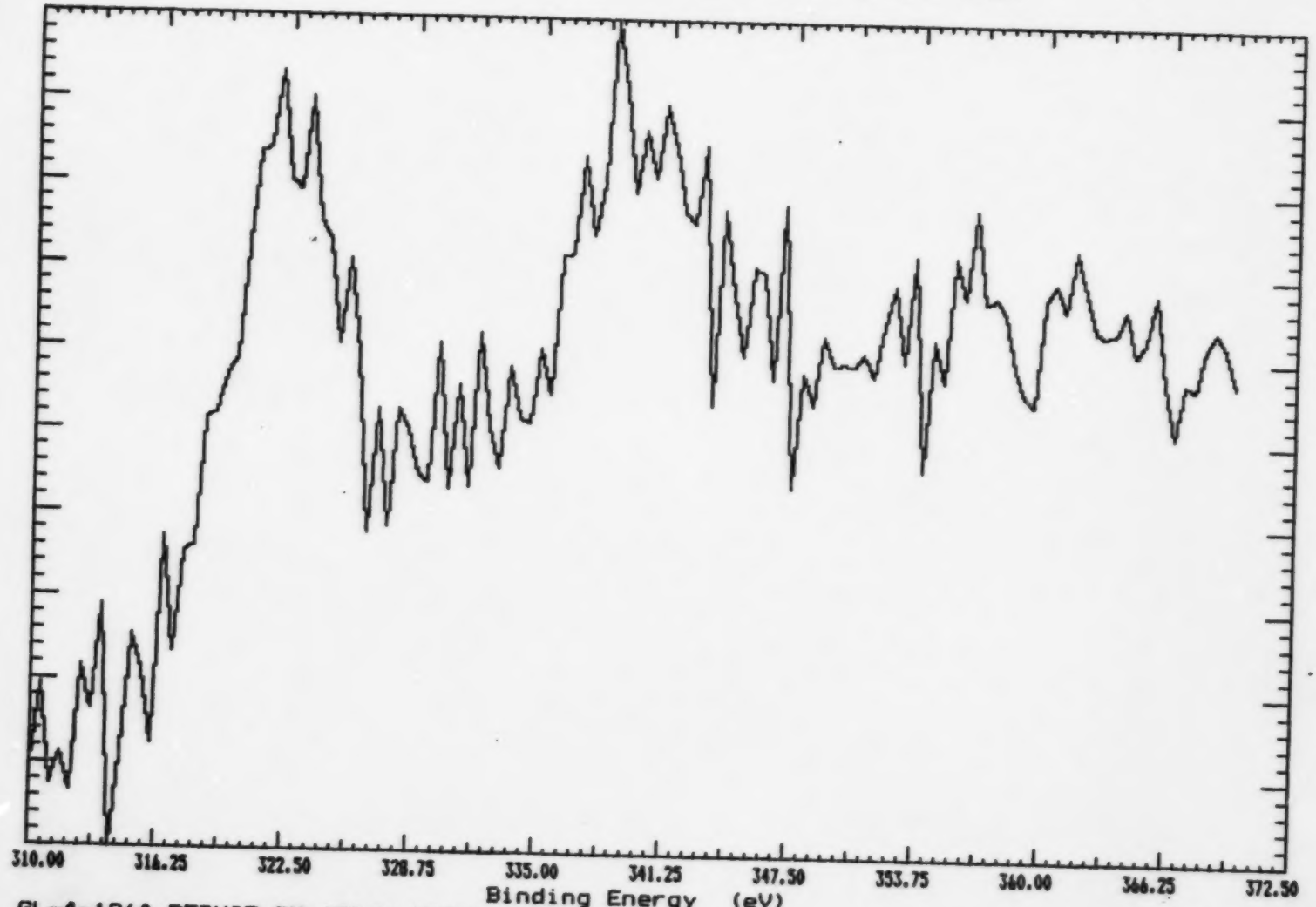


GL-4-186A REDUIT CM 15D/H MG300 NR C1
OPT SI2P+MECA V=8*10-8
9H40 11 MAI 90

ASA46 Region 4 PT4D

VG SCIENTIFIC

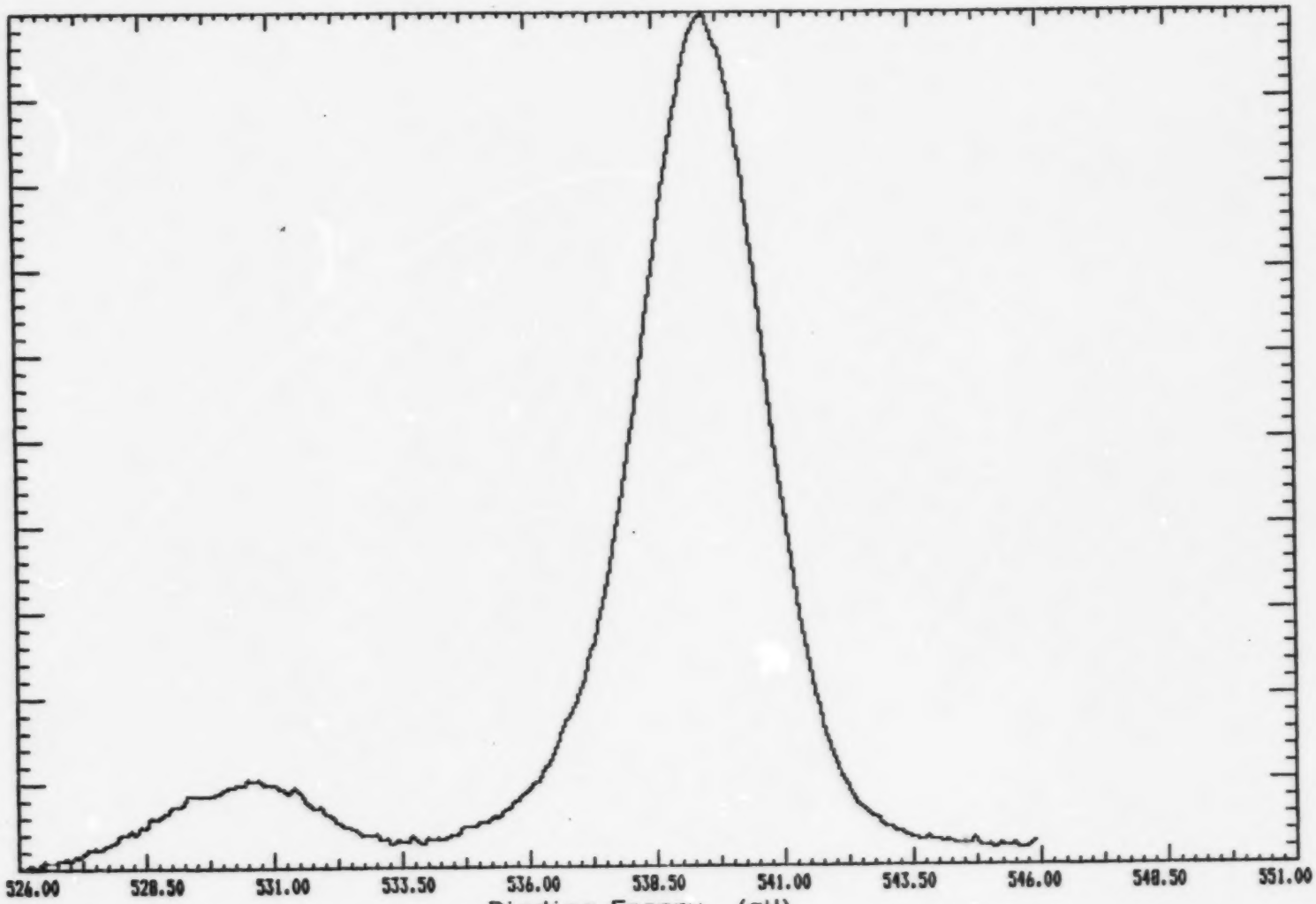
Mg XPS Analyser Energy = 50 eV Max Plotted Count Rate = 1354
Step Size = 0.50 eV. 26 Scans of 120 channels at 50 ms per chan



GL-4-186A REDUIT CM 15D/H MG300 NR C1
OPT SI2P+MECA V=8*10-8
9H40 11 MAI 90

ASA46 Region 5 O1S VG SCIENTIFIC

Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 41987
Step Size = 0.10 eV. 10 Scans of 200 channels at 50 ms per chan

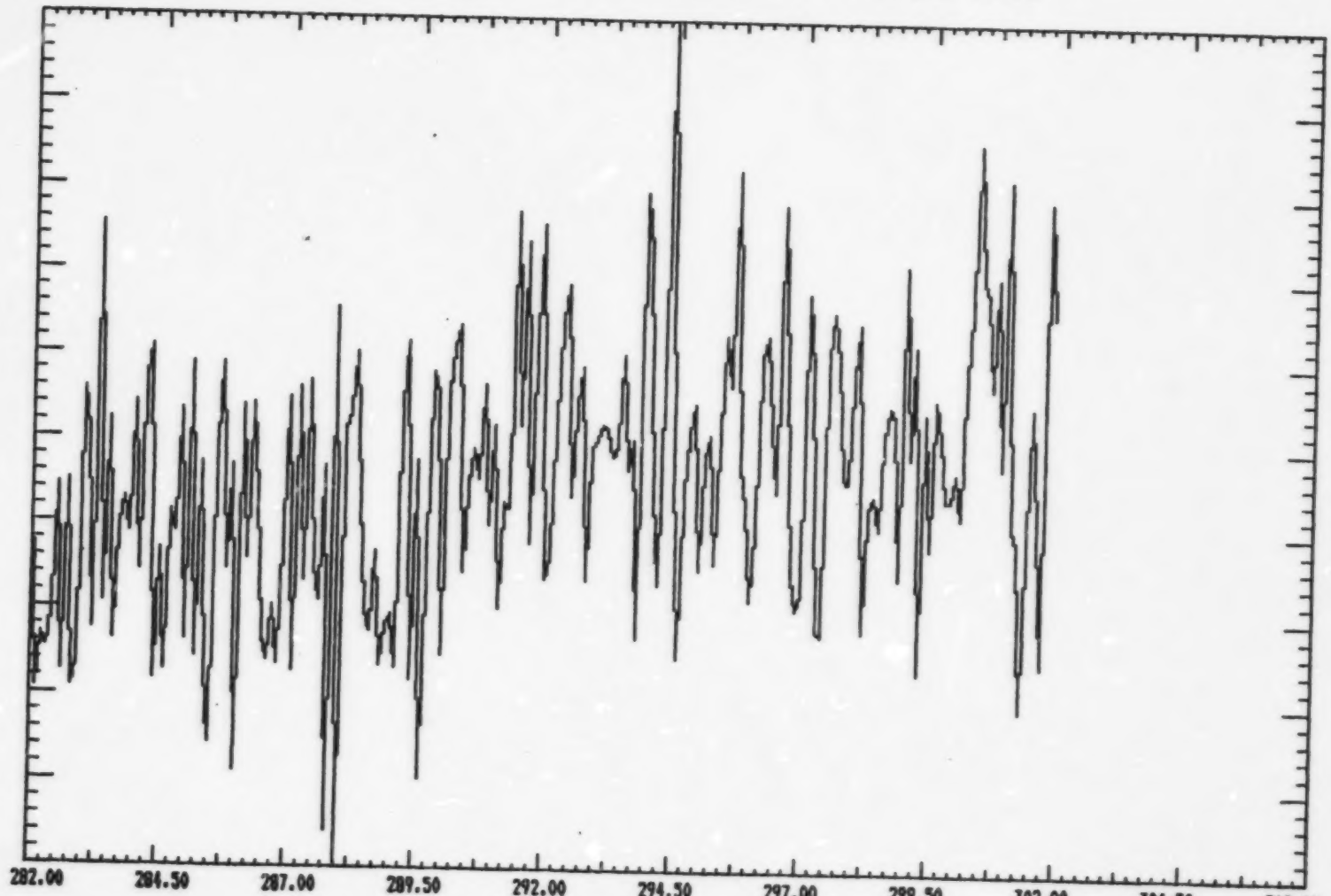


GL-4-186A REDUIT CM 15D/H MG300 NR C1
OPT SI2P+MECA V=8*10-8
9H40 11 MAI 90

ASA46 Region 6 C1S

VG SCIENTIFIC

Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 511
Step Size = 0.10 eV. 10 Scans of 200 channels at 50 ms per chan

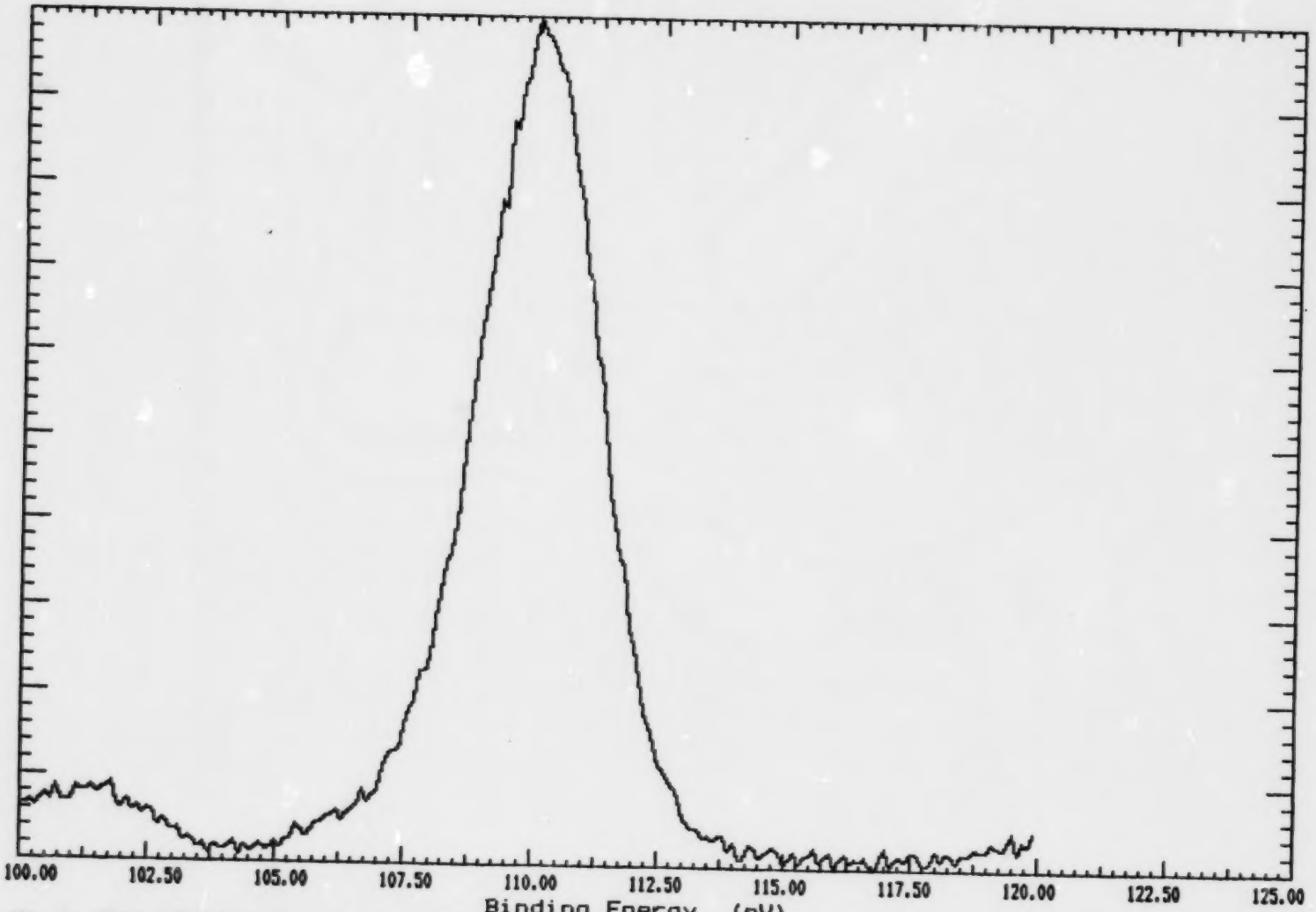


GL-4-186A REDUIT CM 15D/H MG300 NR C1
OPT SI2P+MECA V=8*10-8
9H40 11 MAI 90

ASA46 Region 7 SI2P

VG SCIENTIFIC

Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 8101
Step Size = 0.10 eV. 10 Scans of 200 channels at 50 ms per chan



GL-4-186A REDUIT CM 15D/H MG300 NR C1
OPT SI2P+MECA V=8*10-8
9H40 11 MAI 90

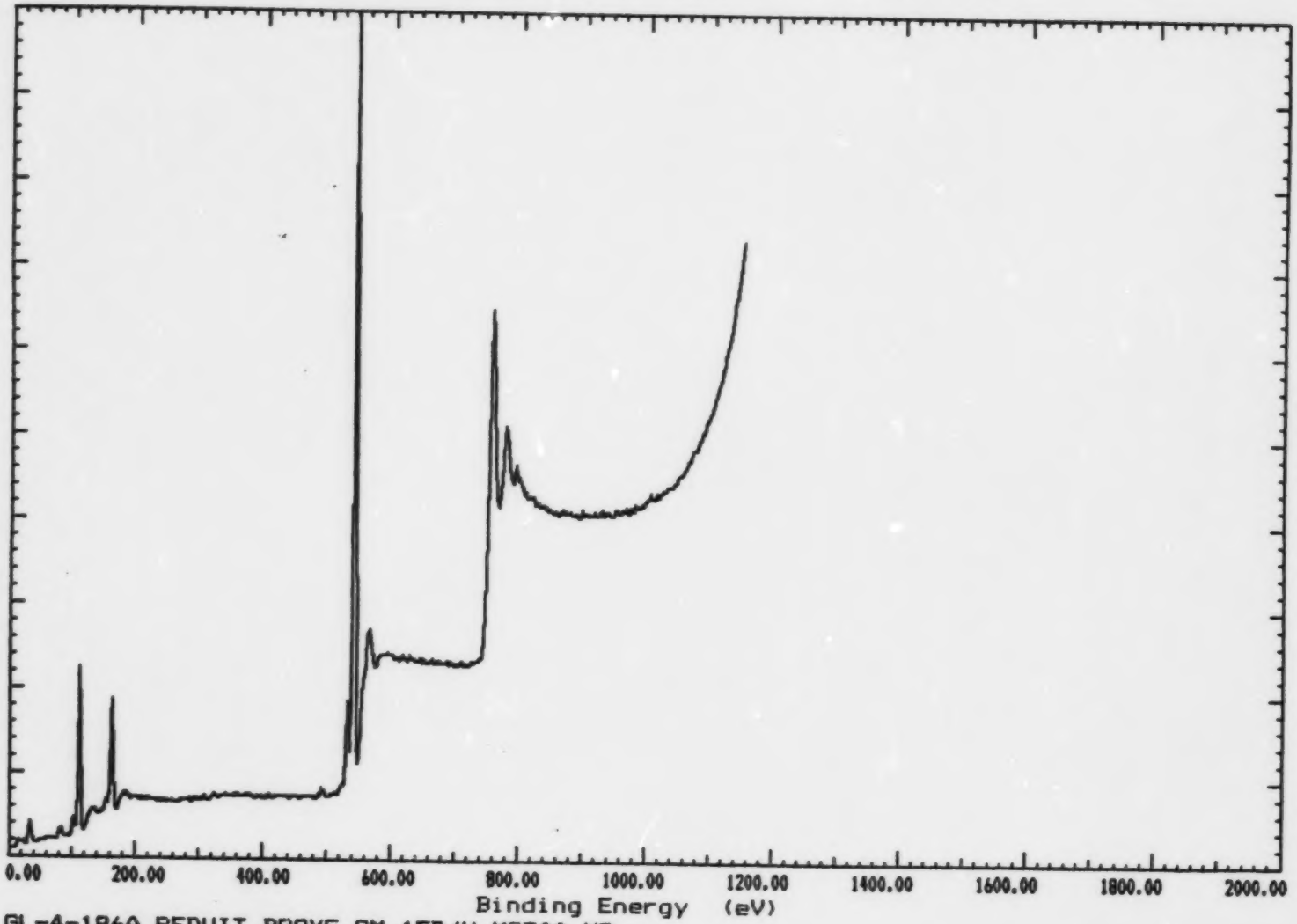
Pt/Silica

Sample No. 186A (2.97% Pt)

REDUCED AND GROUND

ASA47 Region 1 SURVEY VG SCIENTIFIC

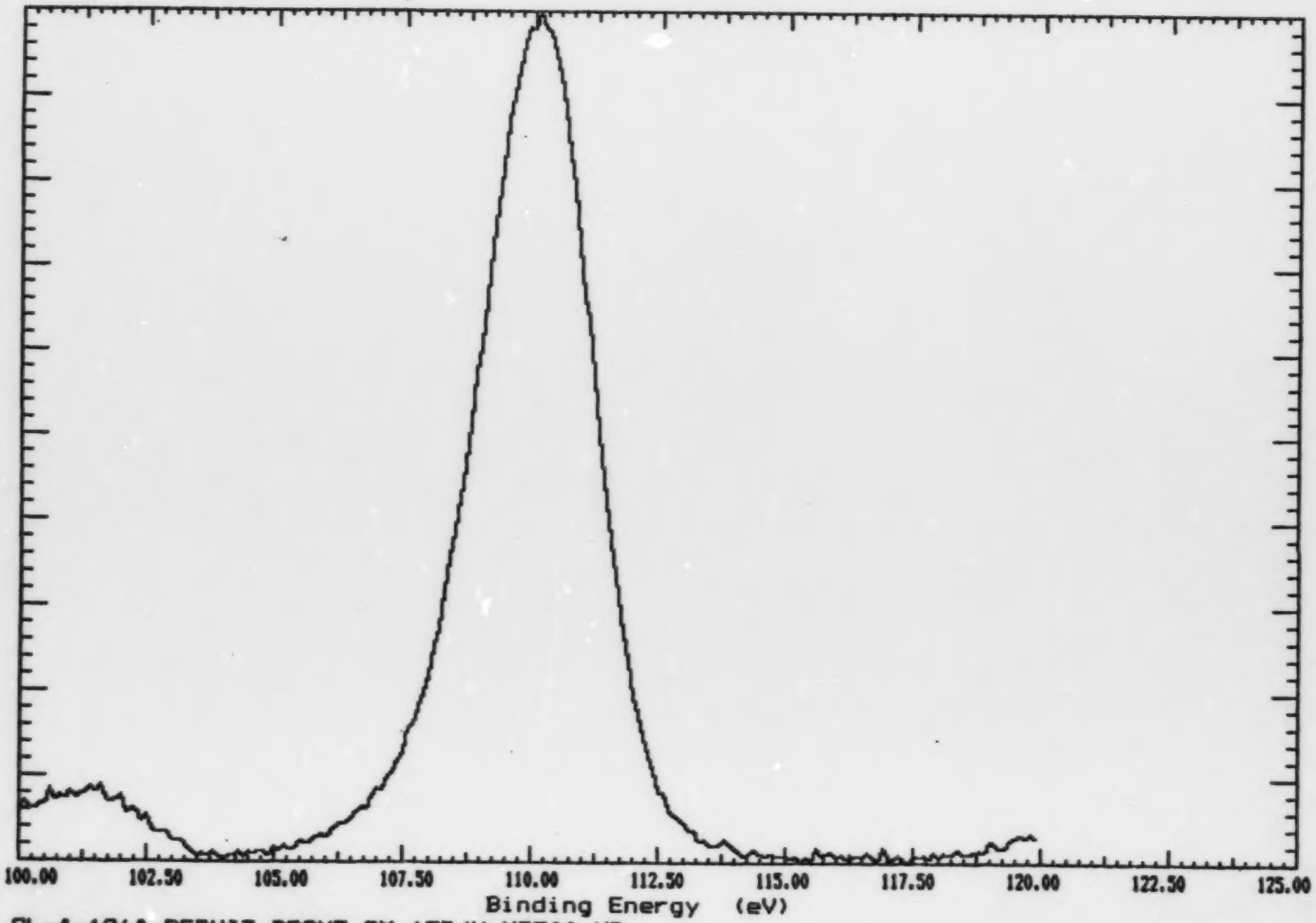
Mg XPS Analyser Energy = 50 eV Max Plotted Count Rate = 176695
Step Size = 1.00 eV. 5 Scans of 1150 channels at 50 ms per chan



GL-4-186A REDUIT BROYE CM 15D/H MG300 NR
C1 OPT SI2P+MECA V=5*10-8
12H15 11 MAI 90

ASA47 Region 2 SI2P VG SCIENTIFIC

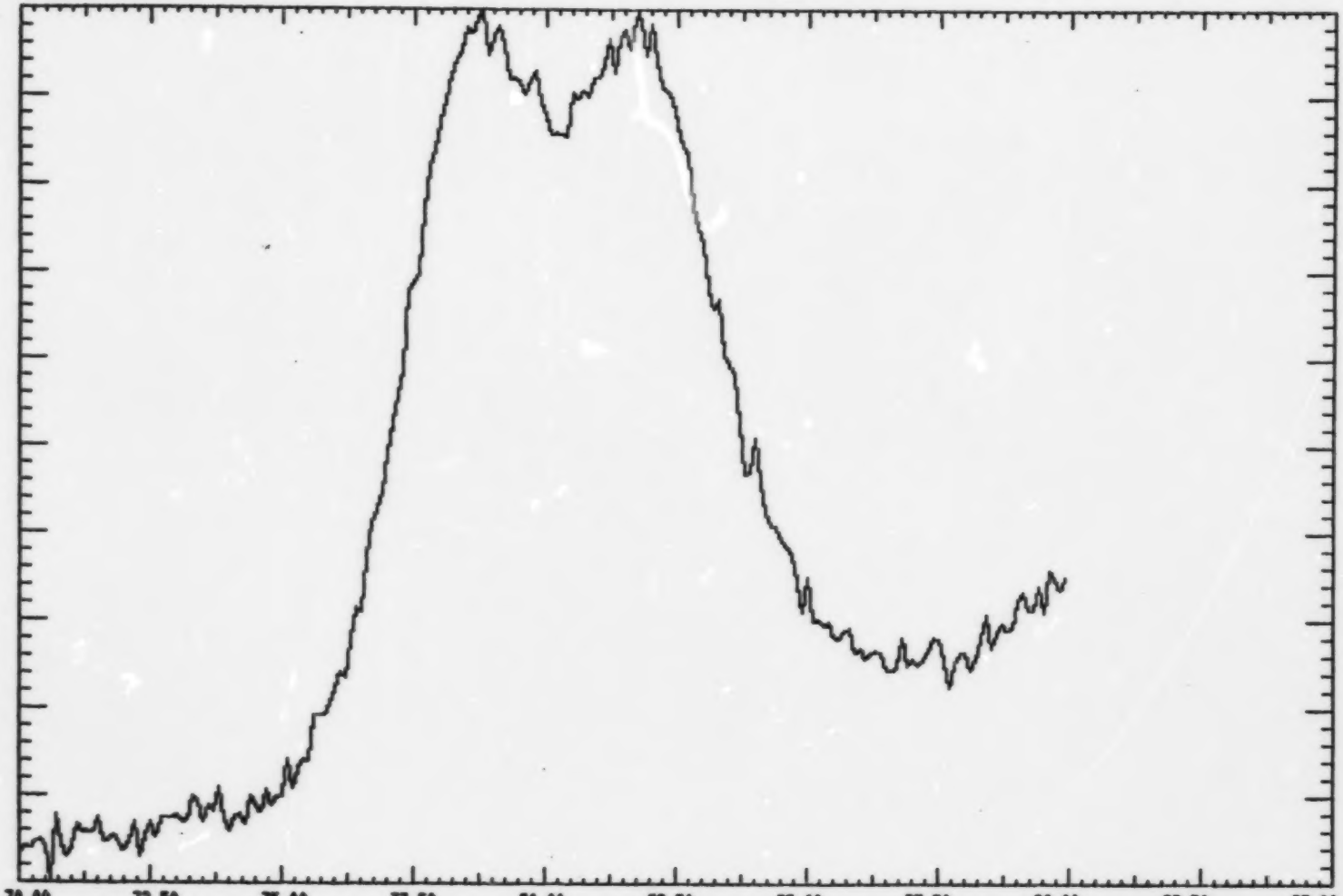
Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 8360
Step Size = 0.10 eV. 30 Scans of 200 channels at 50 ms per chan



GL-4-186A REDUIT BROYE CM 15D/H MG300 NR
C1 OPT SI2P+MECA V=5*10-8
12H15 11 MAI 90

ASA47 Region 3 PT4F VG SCIENTIFIC

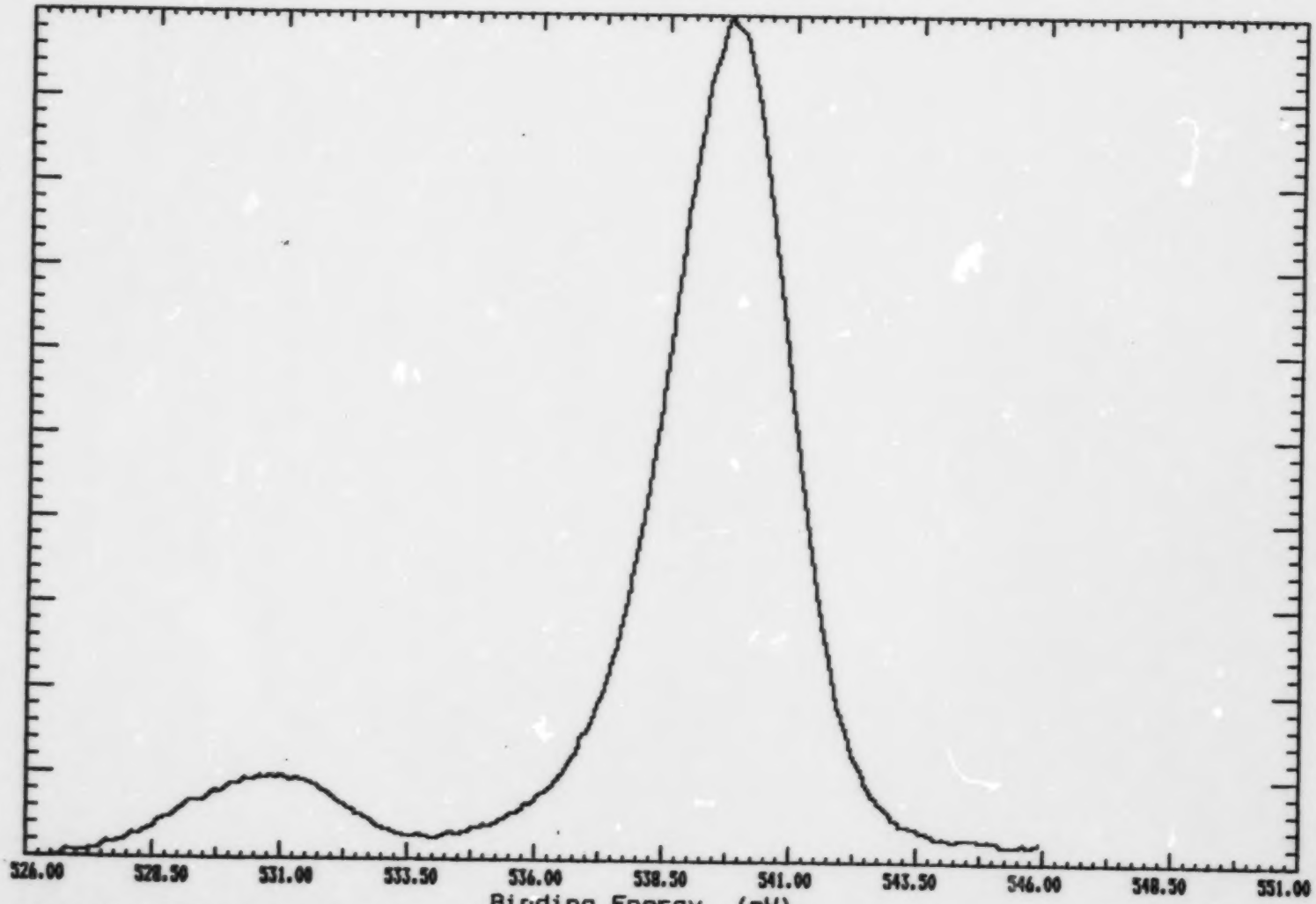
Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 464
Step Size = 0.10 eV. 452 Scans of 200 channels at 50 ms per chan



GL-4-186A REDUIT BROYE CM 15D/H MG300 NR
C1 OPT SI2P+MECA V=5*10-8
12H15 11 MAI 90

ASA47 Region 4 01S VG SCIENTIFIC

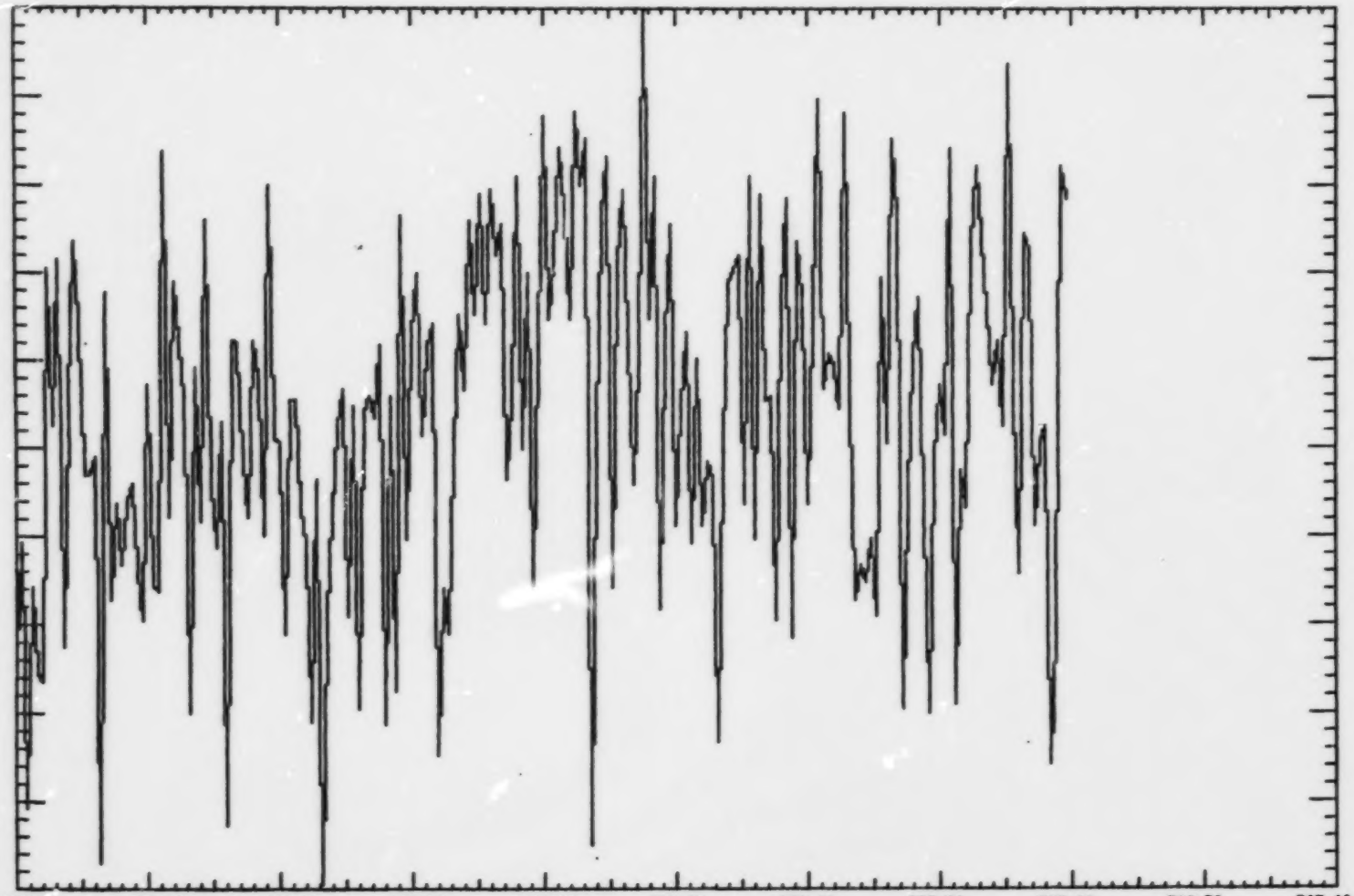
Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 44117
Step Size = 0.10 eV. 15 Scans of 200 channels at 50 ms per chan



GL-4-186A REDUIT BROYE CM 15D/H MG300 NR
C1 OPT SI2P+MECA V=5*10-8
12H15 11 MAI 90

ASA47 Region 5 C1S VG SCIENTIFIC

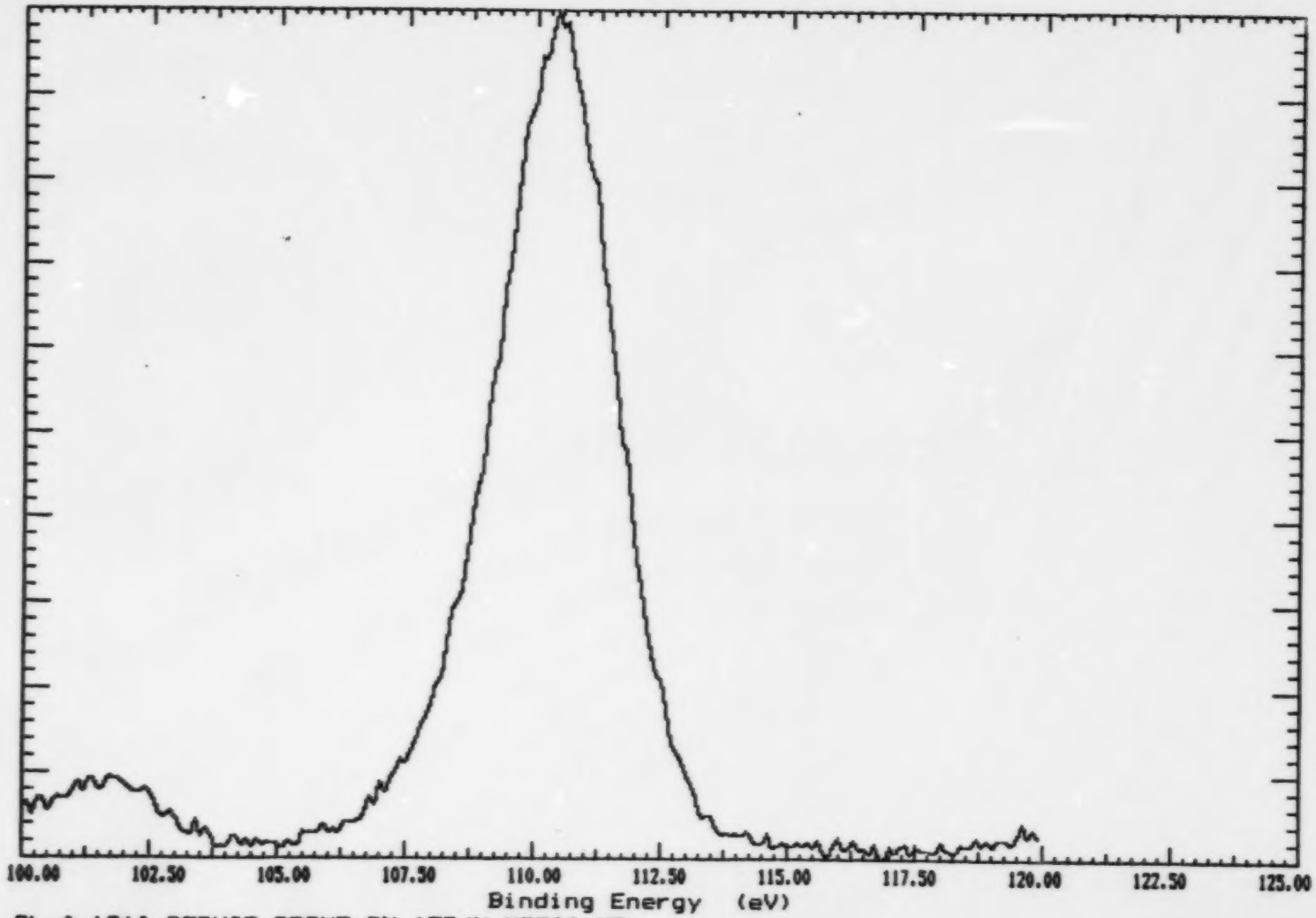
Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 407
Step Size = 0.10 eV. 10 Scans of 200 channels at 50 ms per chan



GL-4-186A REDUIT BROYE CM 15D/H MG300 NR
C1 OPT SI2P+MECA V=5*10-8
12H15 11 MAI 90

ASA47 Region 6 SI2P VG SCIENTIFIC

Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 8625
Step Size = 0.10 eV. 10 Scans of 200 channels at 50 ms per chan



GL-4-186A REDUIT BROYE CM 15D/H MG300 NR
C1 OPT SI2P+MECA V=5*10-8
12H15 11 MAI 90

Pt/Silica

Sample No. 186B (1.10% Pt)

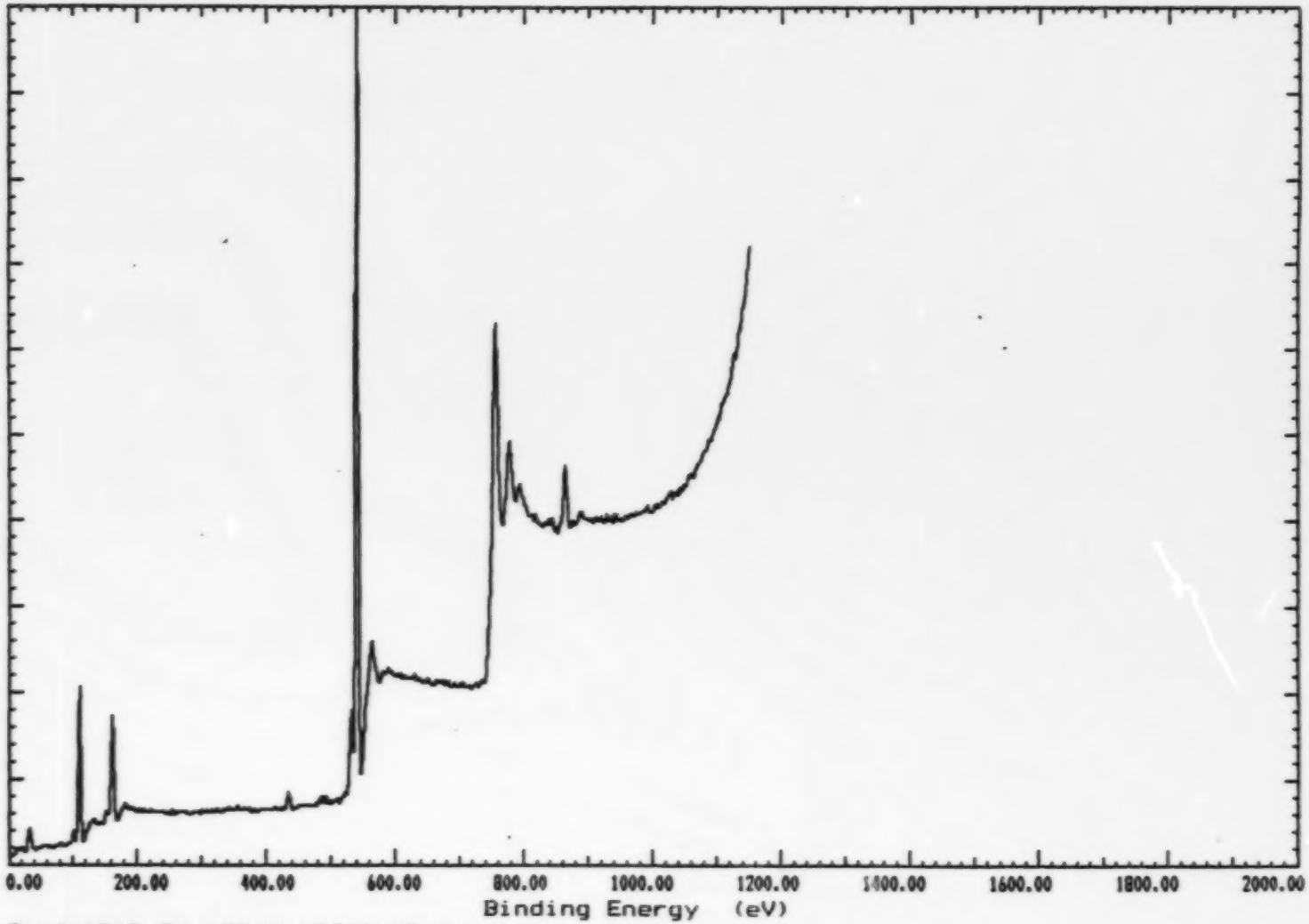
Pt/Silica

Sample No. 186B (1.10% Pt)

CALCINED

ASA44 Region 1 SURVEY VG SCIENTIFIC

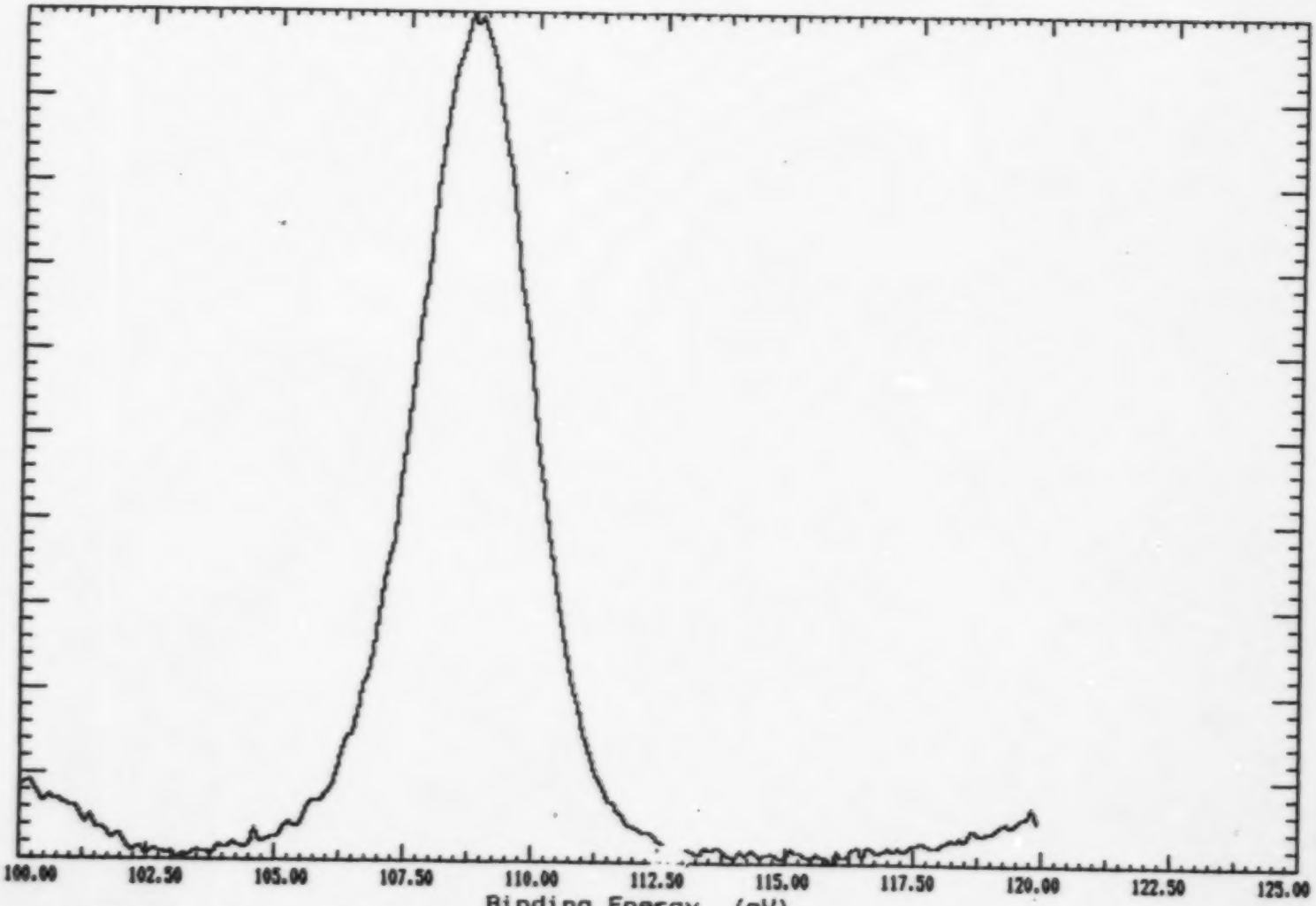
Mg XPS Analyser Energy = 50 eV Max Plotted Count Rate = 145959
Step Size = 1.00 eV. 5 Scans of 1150 channels at 50 ms per chan



GL-4-186B CM 15D/H MG300 NR C1
OPT SI2P+MECA
11H30 3 AVRIL 90

ASA44 Region 2 SI2P VG SCIENTIFIC

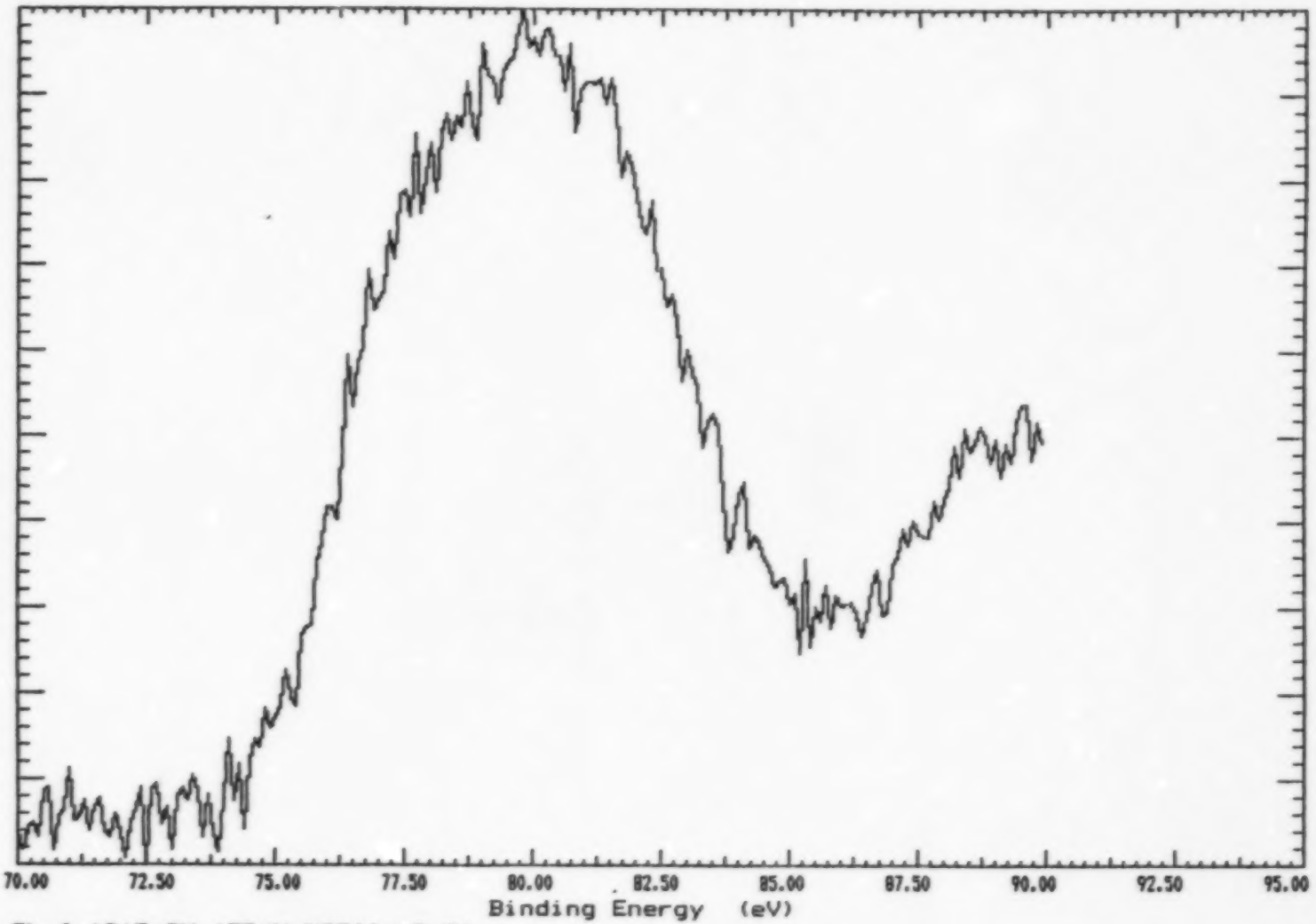
Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 6114
Step Size = 0.10 eV. 30 Scans of 200 channels at 50 ms per chan



BL-4-186B CM 15D/H MG300 NR C1
OPT SI2P+MECA
11H30 3 AVRIL 90

ASA44 Region 3 PT4F VG SCIENTIFIC

Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 133
Step Size = 0.10 eV. 960 Scans of 200 channels at 50 ms per chan

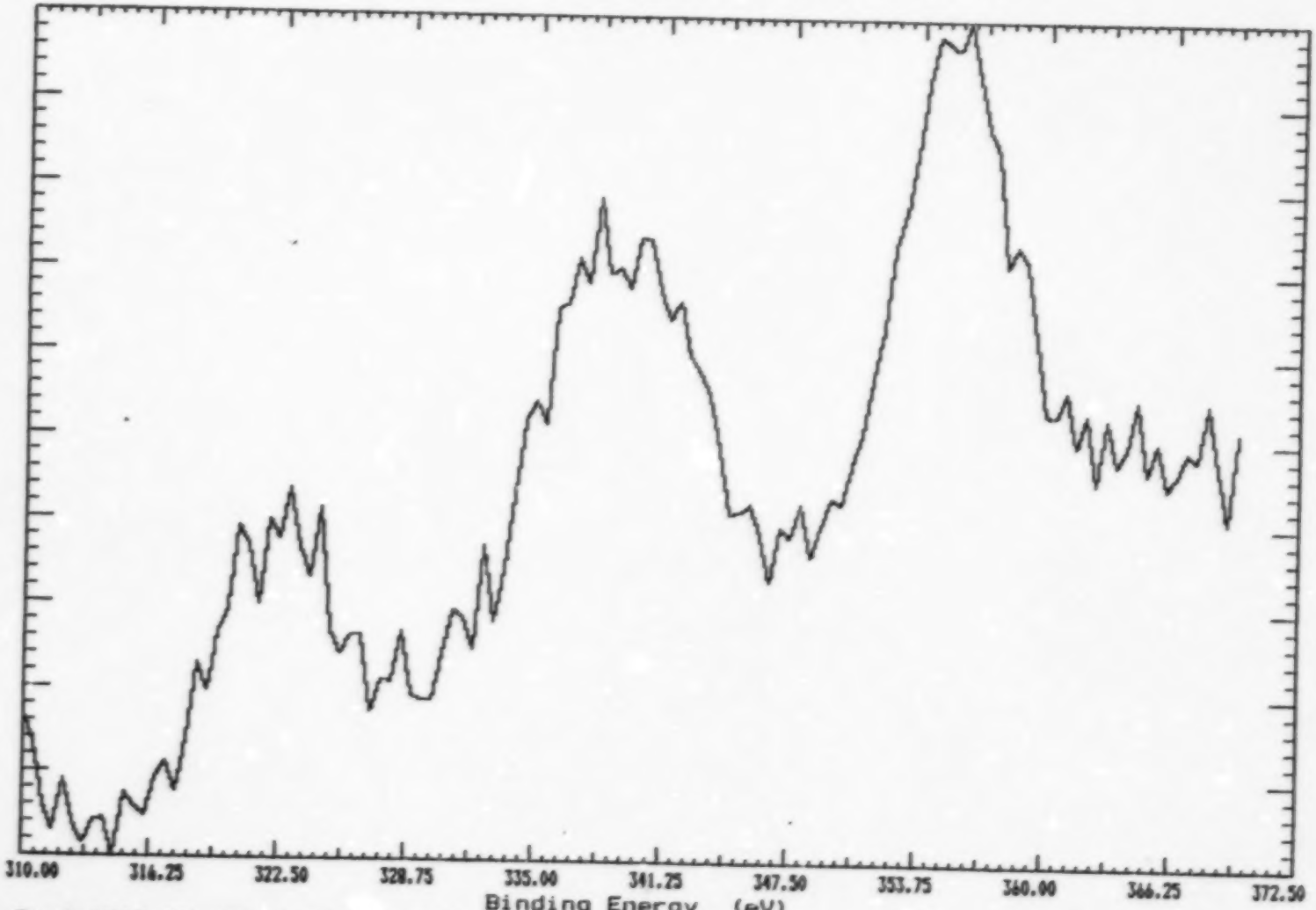


GL-4-186B CM 15D/H MG300 NR C1
OPT SI2P+MECA
11H30 3 AVRIL 90

ASA44 Region 4 PT4D

VG SCIENTIFIC

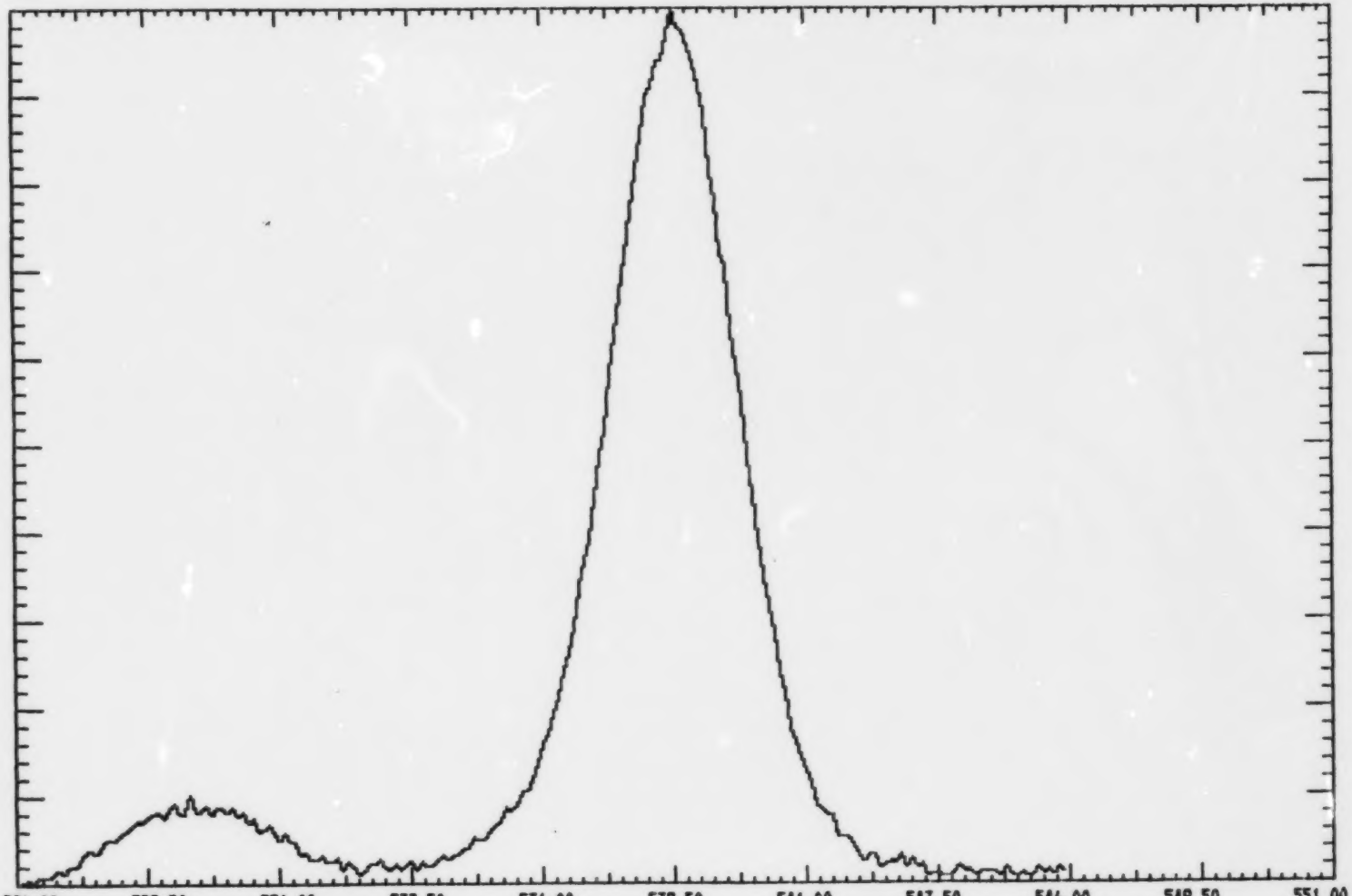
Mg XPS Analyser Energy = 50 eV Max Plotted Count Rate = 744
Step Size = 0.50 eV. 281 Scans of 120 channels at 50 ms per chan



GL-4-186B CM 15D/H MG300 NR C1
OPT SI2P+MECA
11H30 3 AVRIL 90

ASA44 Region 5 01S VG SCIENTIFIC

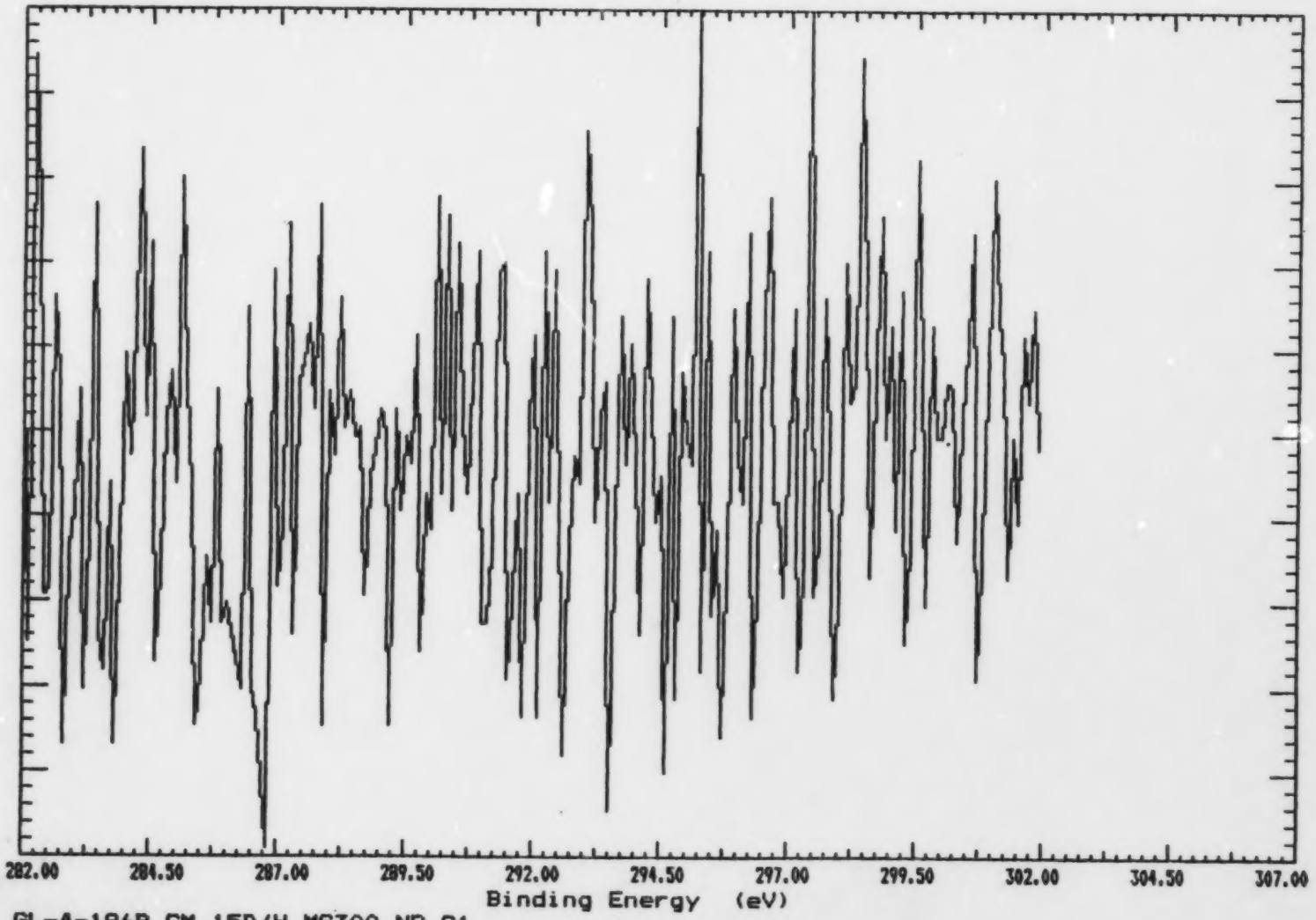
Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 32405
Step Size = 0.10 eV. 4 Scans of 200 channels at 50 ms per chan



GL-4-186B CM 15D/H MG300 NR C1
OPT SI2P+MECA
11H30 3 AVRIL 90

ASA44 Region 6 C1S VG SCIENTIFIC

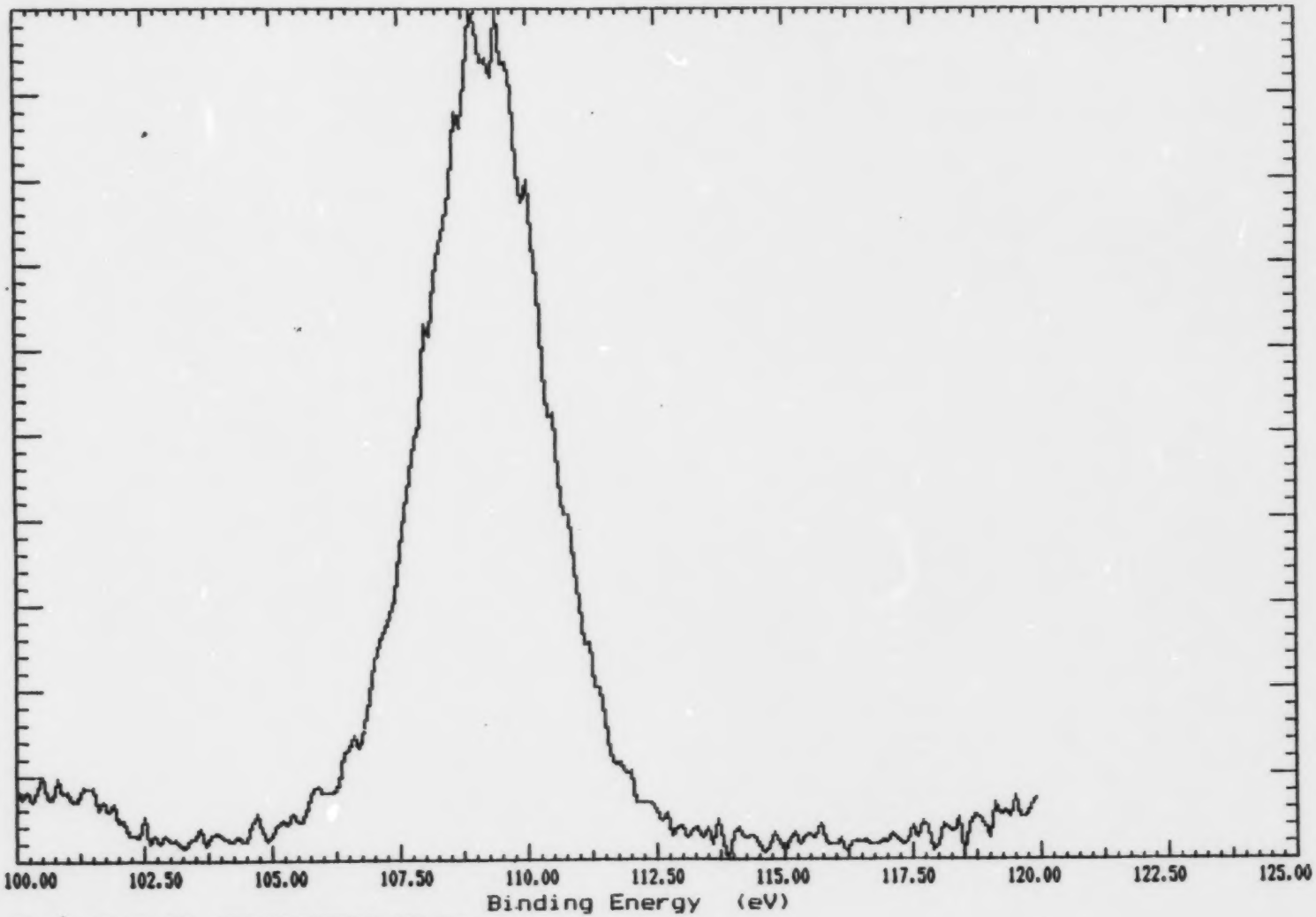
Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 606
Step Size = 0.10 eV. 3 Scans of 200 channels at 50 ms per chan



GL-4-186B CM 15D/H MG300 NR C1
OPT SI2P+MECA
11H30 3 AVRIL 90

ASA44 Region 7 SI2P VG SCIENTIFIC

Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 6155
Step Size = 0.10 eV. 5 Scans of 200 channels at 50 ms per chan



GL-4-186B CM 15D/H MG300 NR C1
OPT SI2P+MECA
11H30 3 AVRIL 90

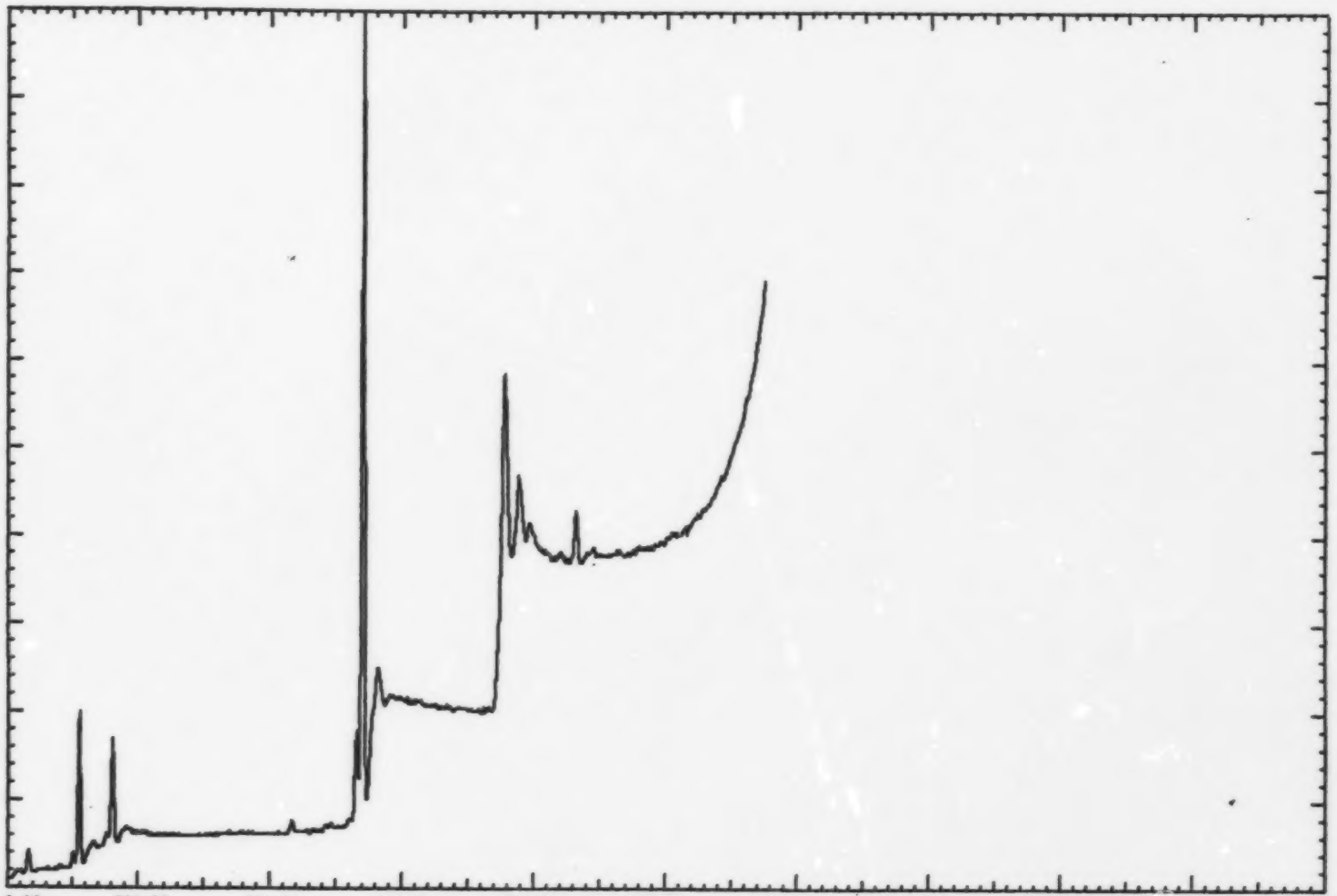
Pt/Silica

Sample No. 186B (1.10% Pt)

CALCINED AND GROUND

ASA45 Region 1 SURVEY VG SCIENTIFIC

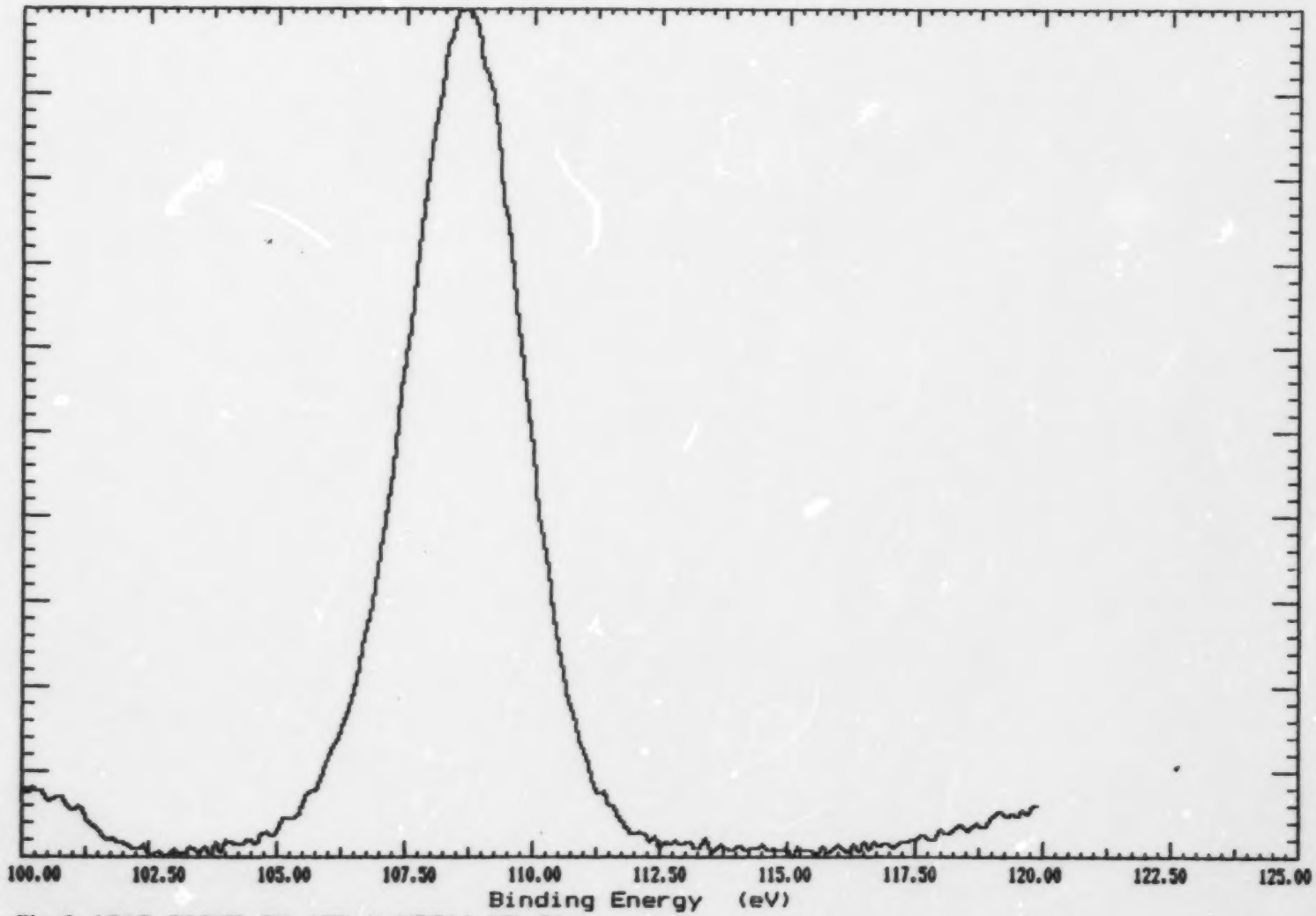
Mg XPS Analyser Energy = 50 eV Max Plotted Count Rate = 178079
Step Size = 1.00 eV. 5 Scans of 1150 channels at 50 ms per chan



GL-4-186B-BROYE CM 15D/H MG300 NR C1
OPT SI2P+MECA V=5*10-9
8H55 5 AVRIL 90

ASA45 Region 2 SI2P VG SCIENTIFIC

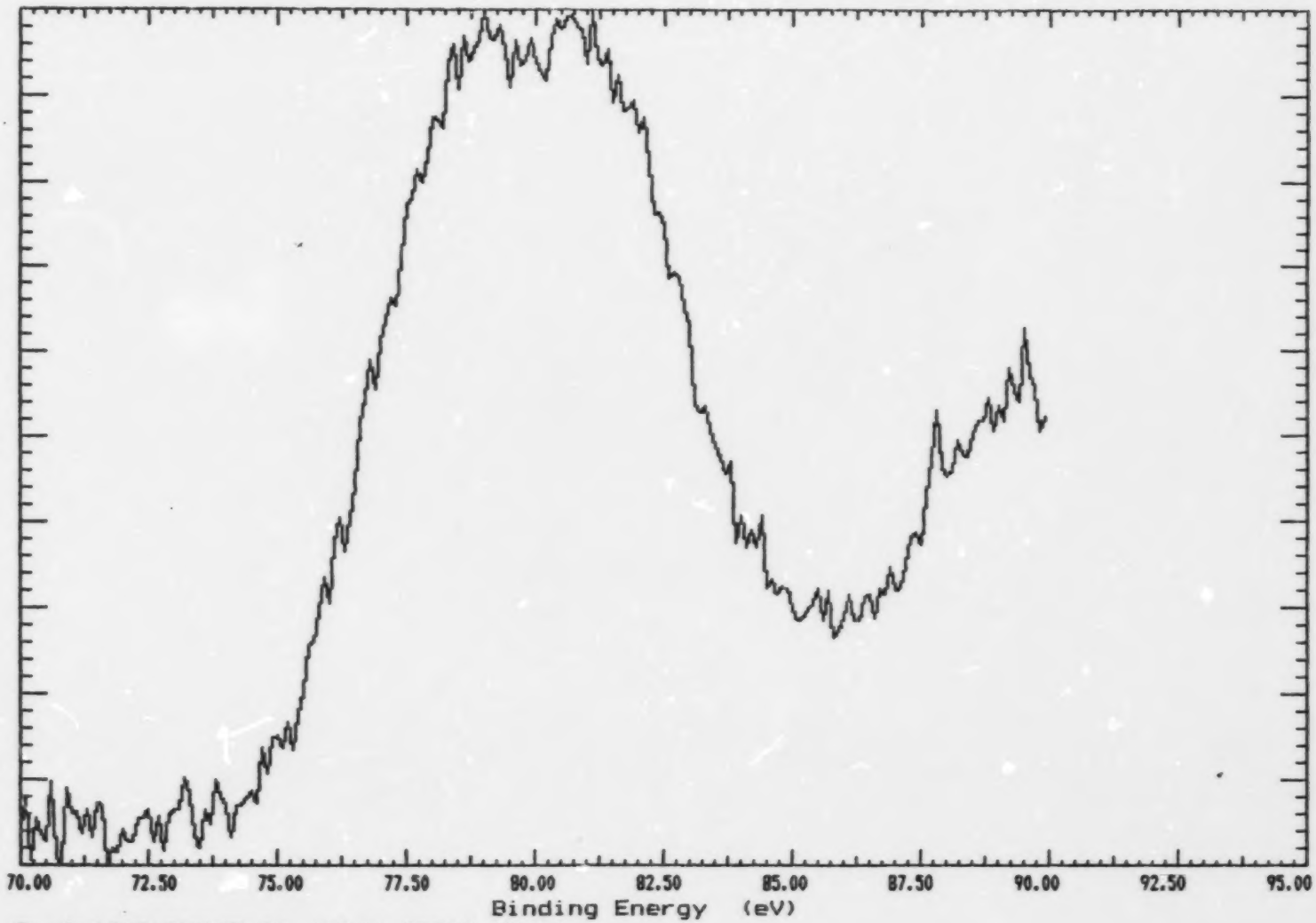
Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 7090
Step Size = 0.10 eV. 30 Scans of 200 channels at 50 ms per chan



GL-4-186B-BROYE CM 15D/H MG300 NR C1
OPT SI2P+MECA V=5*10-9
BH55 5 AVRIL 90

ASA45 Region 3 PT4F VG SCIENTIFIC

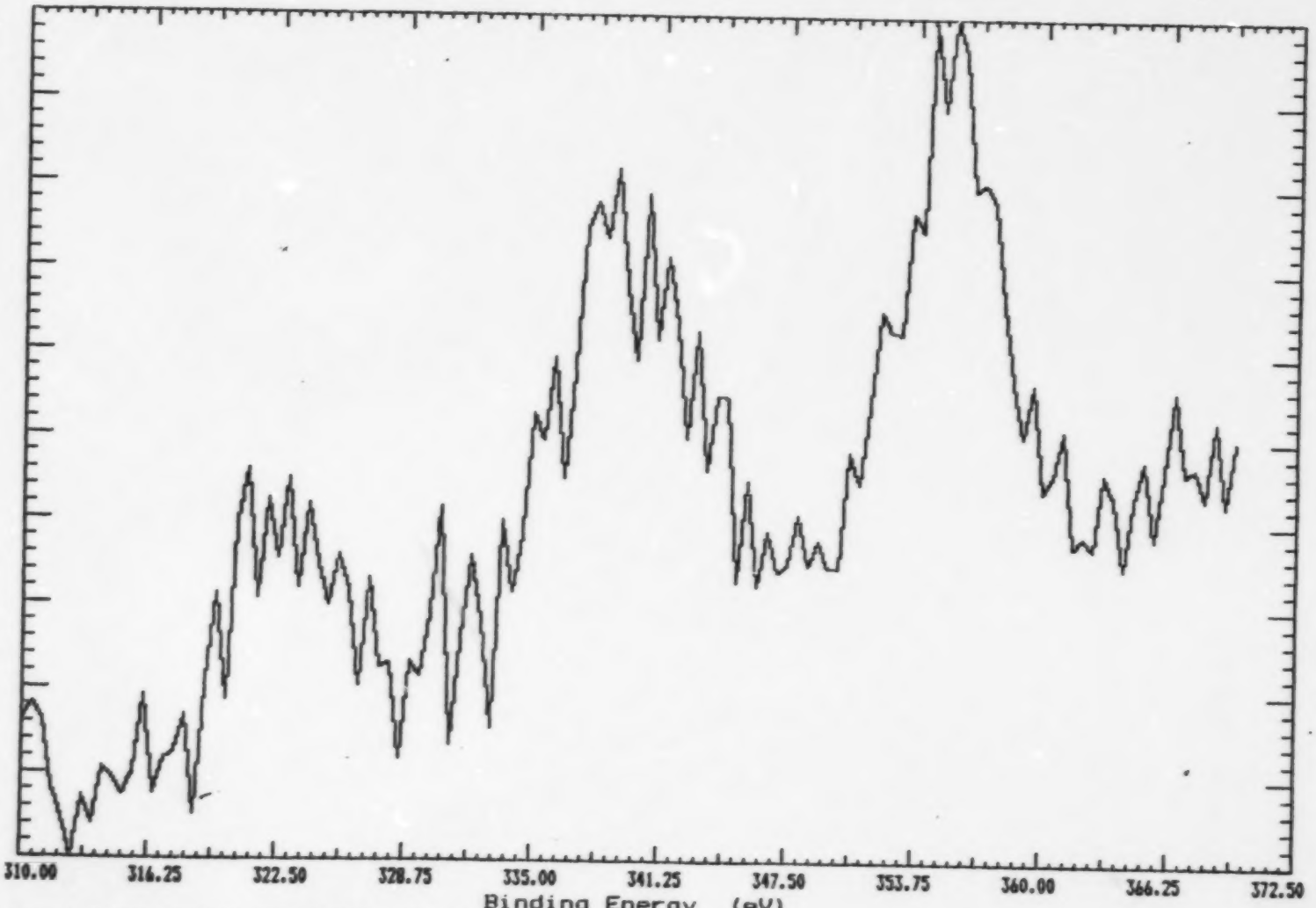
Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 138
Step Size = 0.10 eV. 1620 Scans of 200 channels at 50 ms per chan



GL-4-186B-BROYE CM 15D/H MG300 NR C1
OPT SI2P+MECA V=5*10-9
8H55 5 AVRIL 90

ASA45 Region 4 PT4D VG SCIENTIFIC

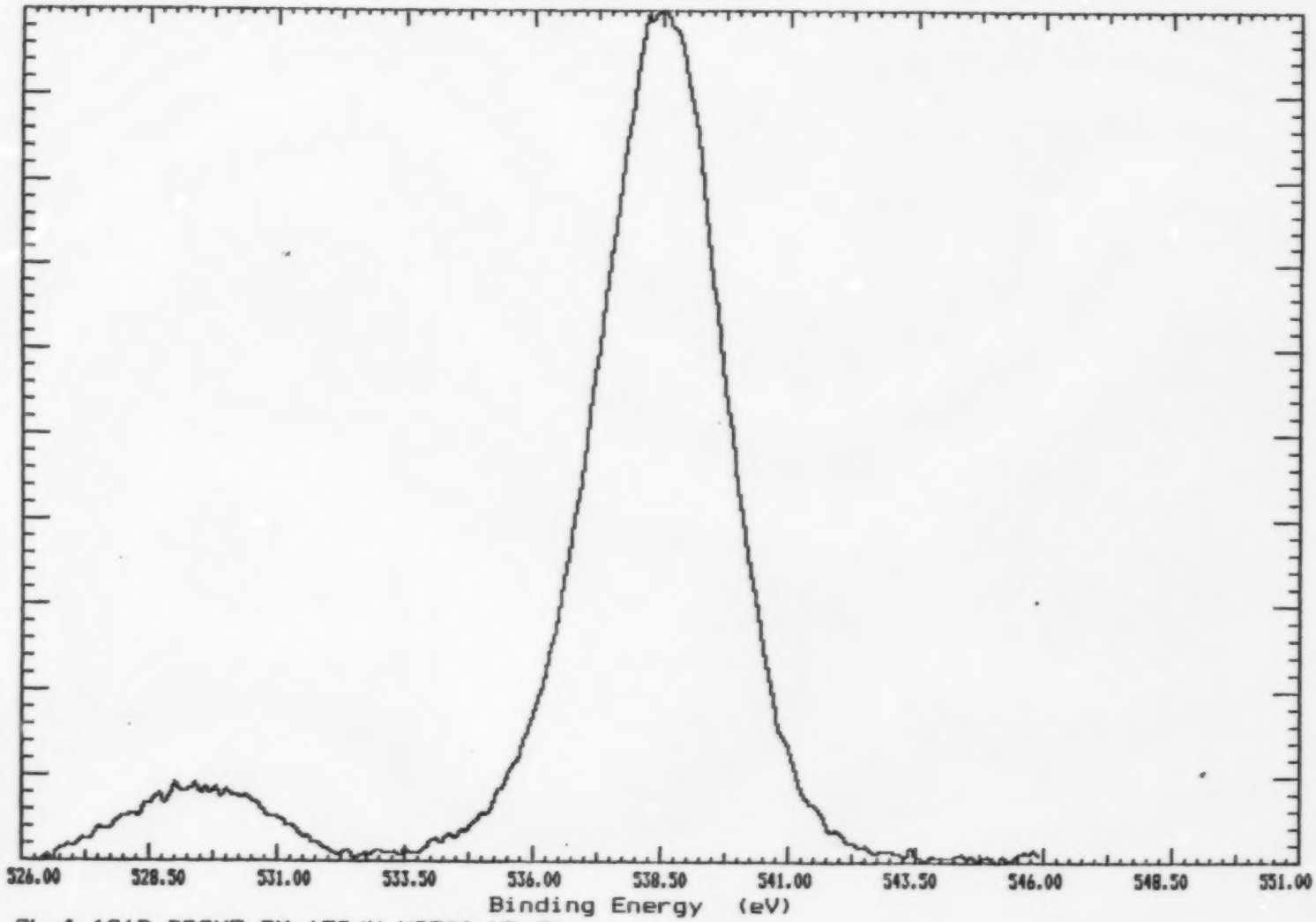
Mg XPS Analyser Energy = 50 eV Max Plotted Count Rate = 927
Step Size = 0.50 eV. 66 Scans of 120 channels at 50 ms per chan



GL-4-186B-BROYE CM 15D/H MG300 NR C1
OPT SI2P+MECA V=5*10-9
8H55 5 AVRIL 90

ASA45 Region 5 01S VG SCIENTIFIC

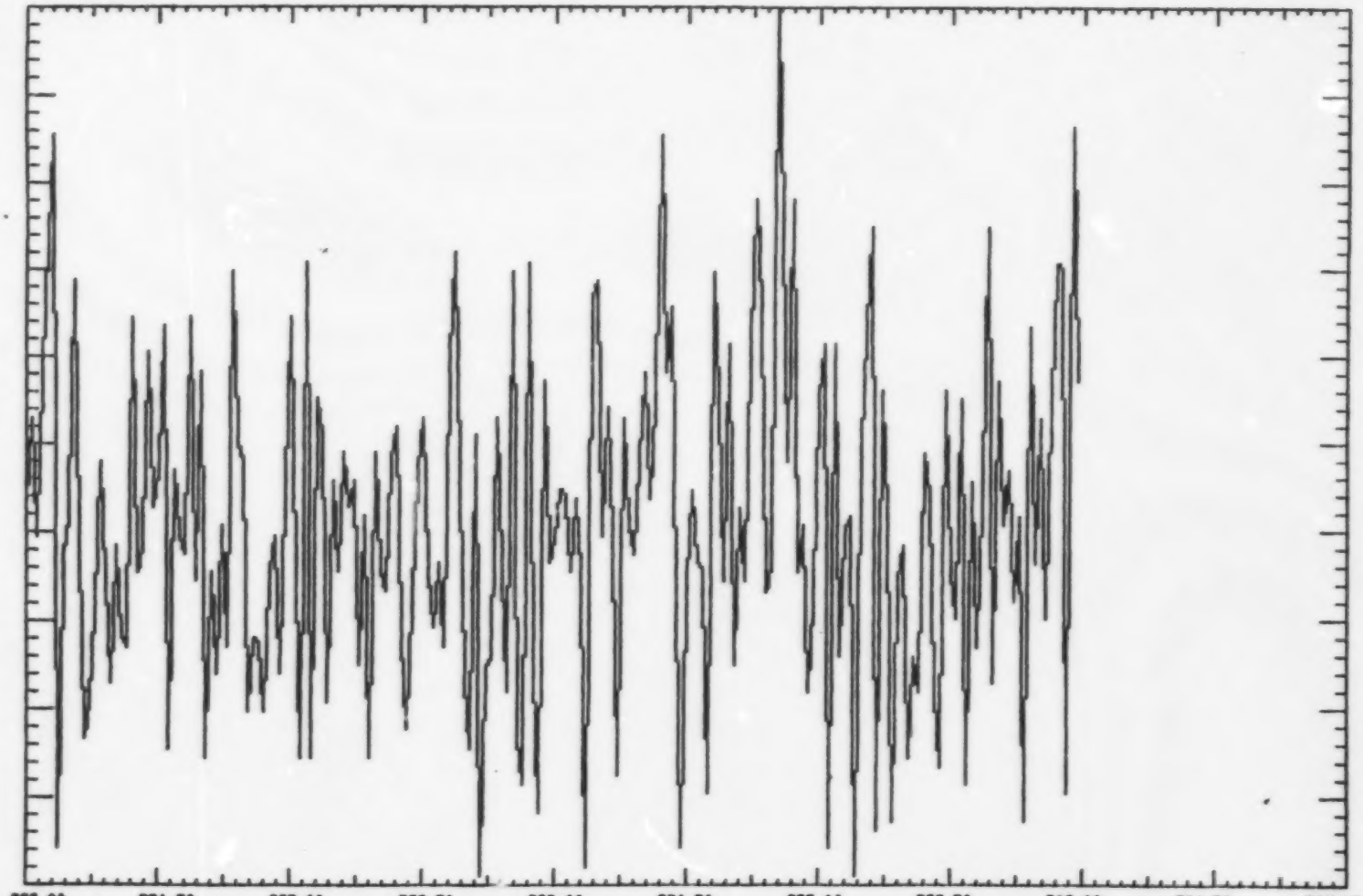
Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 37486
Step Size = 0.10 eV. 6 Scans of 200 channels at 50 ms per chan



GL-4-186B-BROYE CM 15D/H MG300 NR C1
OPT SI2P+MECA V=5*10-9
8H55 5 AVRIL 90

ASA45 Region 6 C1S VG SCIENTIFIC

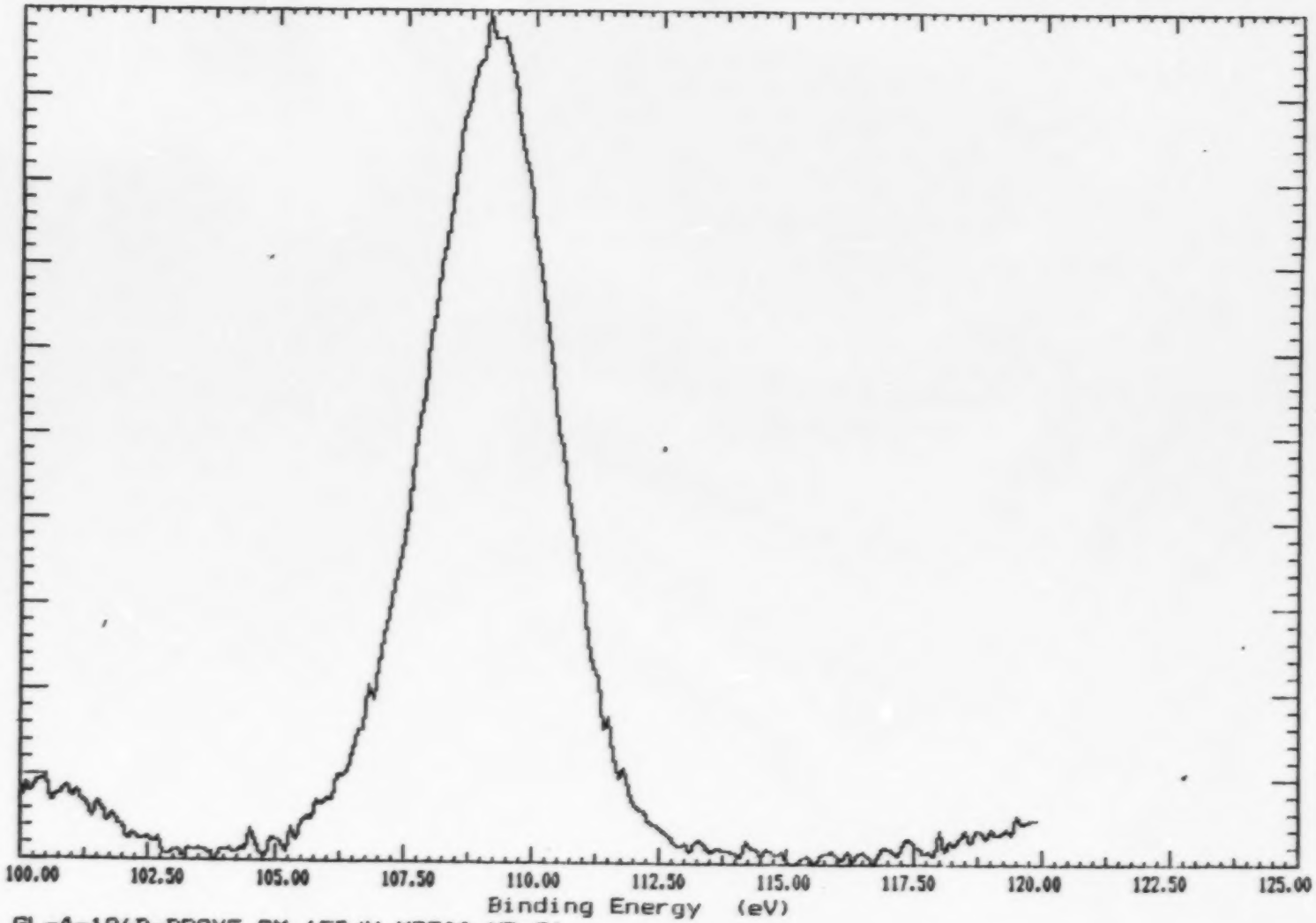
Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 640
Step Size = 0.10 eV. 3 Scans of 200 channels at 50 ms per chan



GL-4-186B-BROYE CM 15D/H MG300 NR C1
OPT SI2P+MECA V=5*10-9
8H55 5 AVRIL 90

ASA45 Region 7 SI2P VG SCIENTIFIC

Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 7165
Step Size = 0.10 eV. 10 Scans of 200 channels at 50 ms per chan



GL-4-186B-BROYE CM 15D/H MG300 NR C1
OPT SI2P+MECA V=5*10-9
BH55 5 AVRIL 90

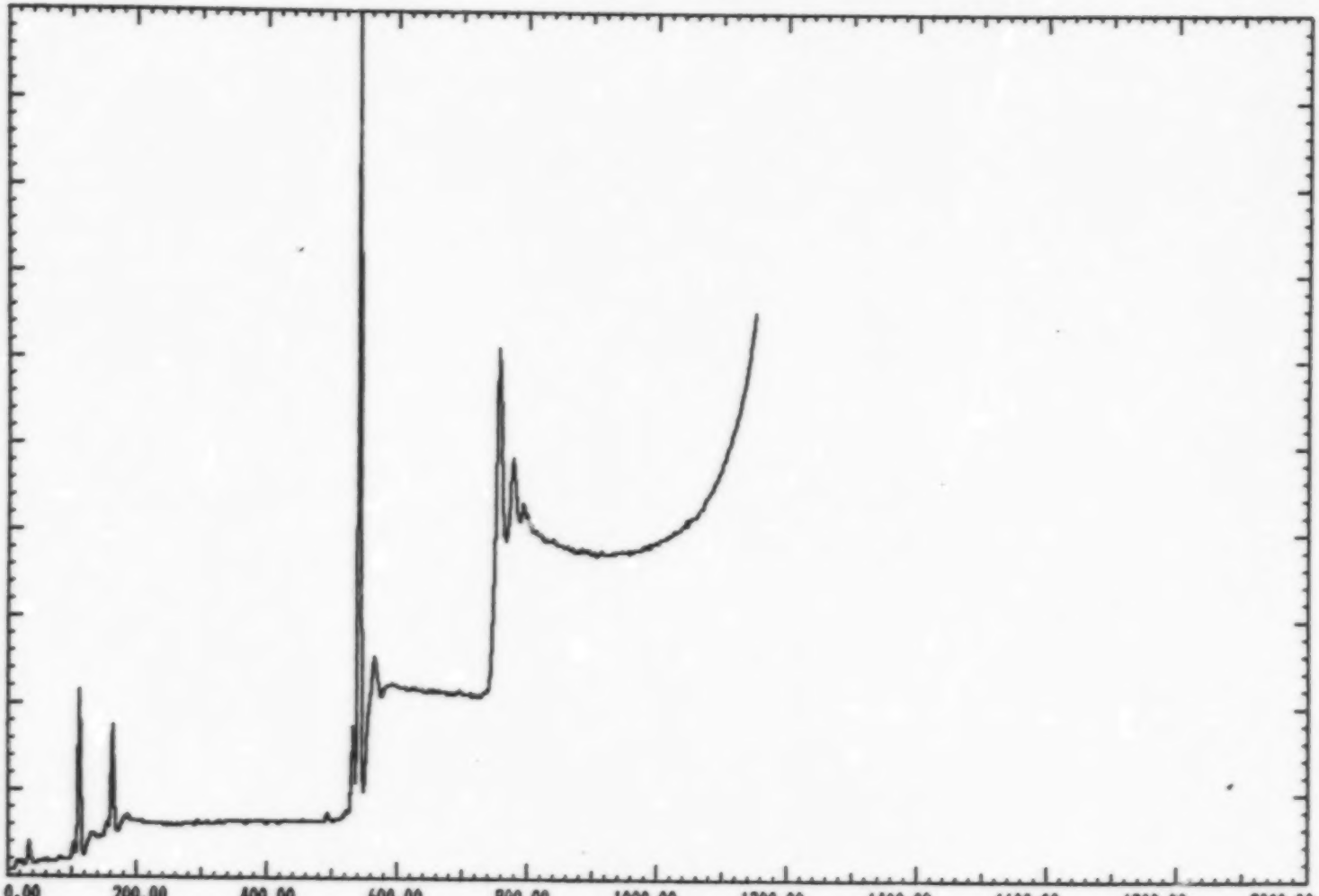
Pt/Silica

Sample No. 186B (1.10% Pt)

REDUCED

ASA49 Region 1 SURVEY VG SCIENTIFIC

Mg XPS Analyser Energy = 50 eV Max Plotted Count Rate = 210183
Step Size = 1.00 eV. 10 Scans of 1150 channels at 50 ms per chan

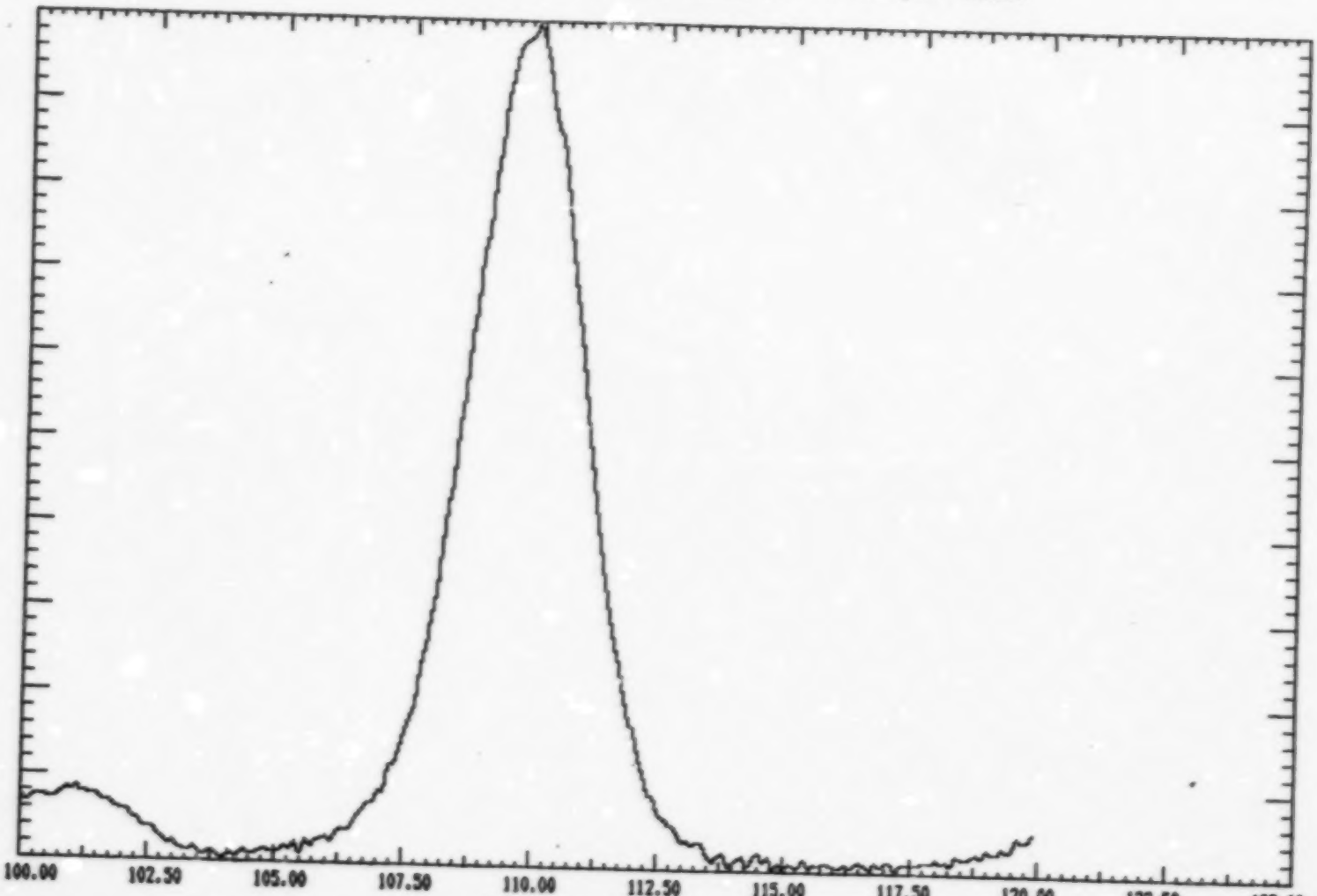


GL-4-186B-REDUIT CM 15D/H MG300 C1 NR
OPT S12P+MECA V=1.5*10-8
9H20 16 MAI 90

ASA49 Region 2 SI2P

VG SCIENTIFIC

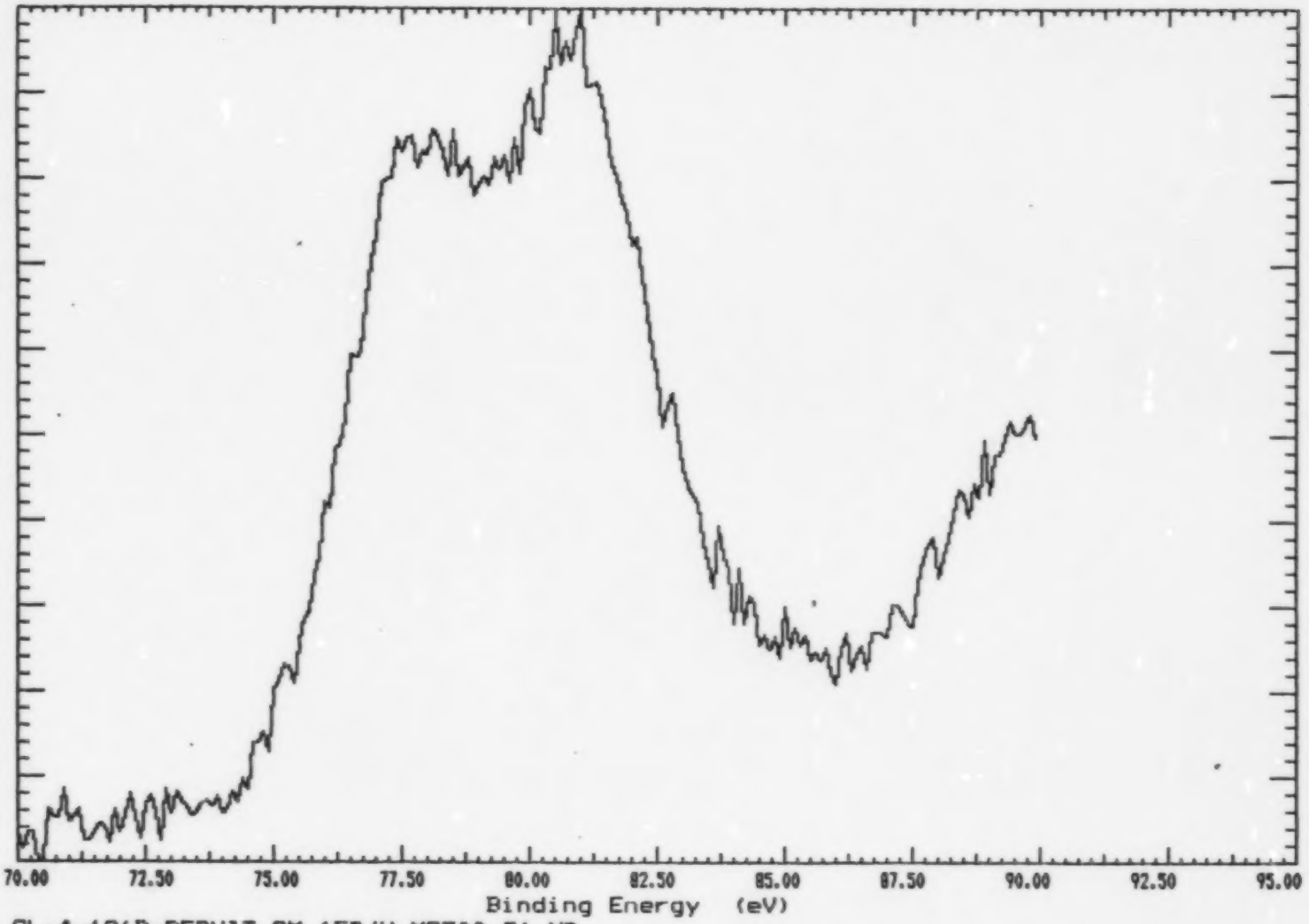
Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 9686
Step Size = 0.10 eV. 20 Scans of 200 channels at 50 ms per chan



GL-4-186B-REDUIT CM 15D/H MG300 C1 NR
OPT SI2P+MECA V=1.5*10-8
9H20 16 MAI 90

ASA49 Region 3 PT4F VG SCIENTIFIC

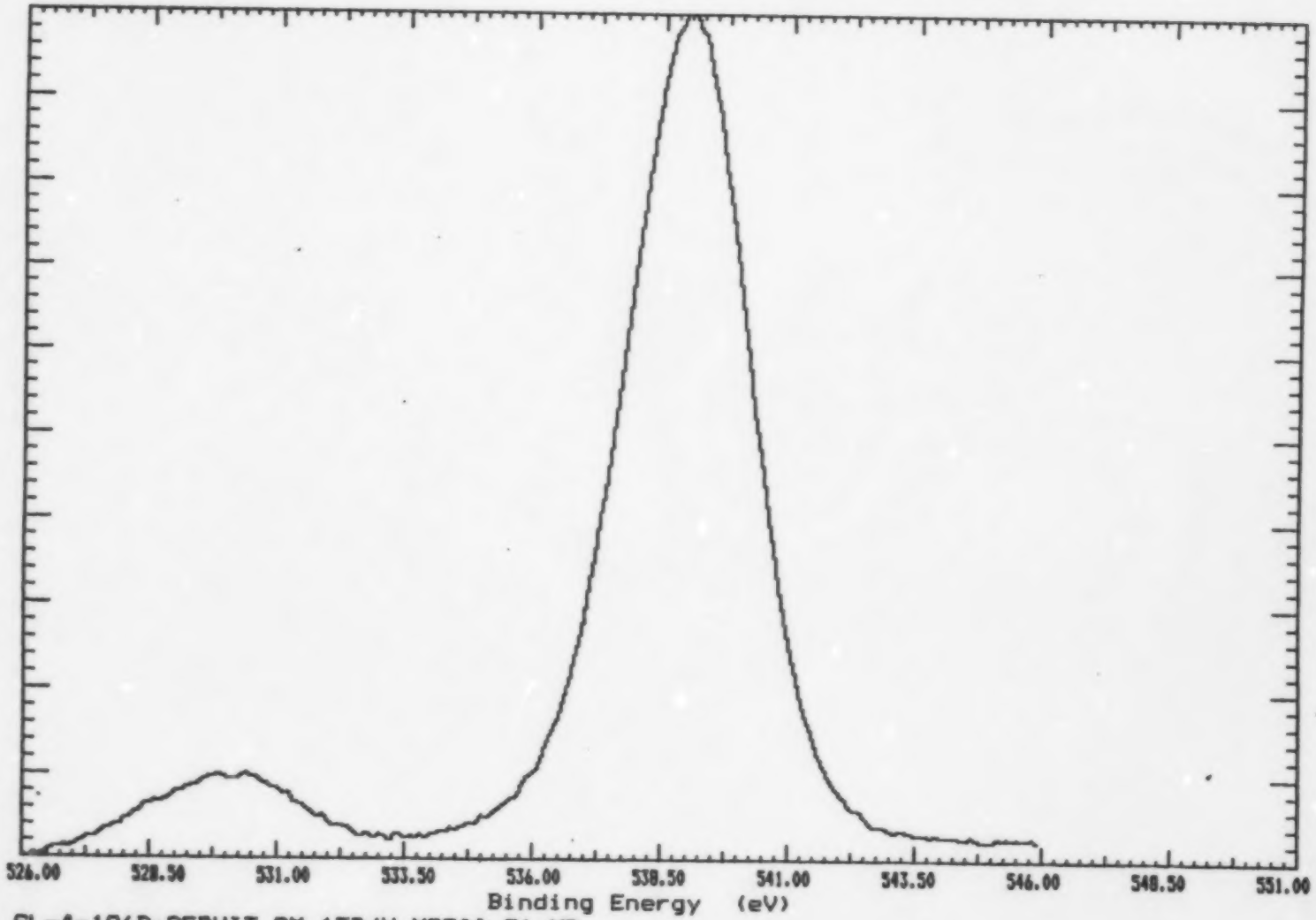
Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 207
Step Size = 0.10 eV. 917 Scans of 200 channels at 50 ms per chan



GL-4-186B-REDUIT CM 15D/H MG300 C1 NR
OPT SI2P+MECA V=1.5*10-8
9H20 16 MAI 90

ASA49 Region 4 O1S VG SCIENTIFIC

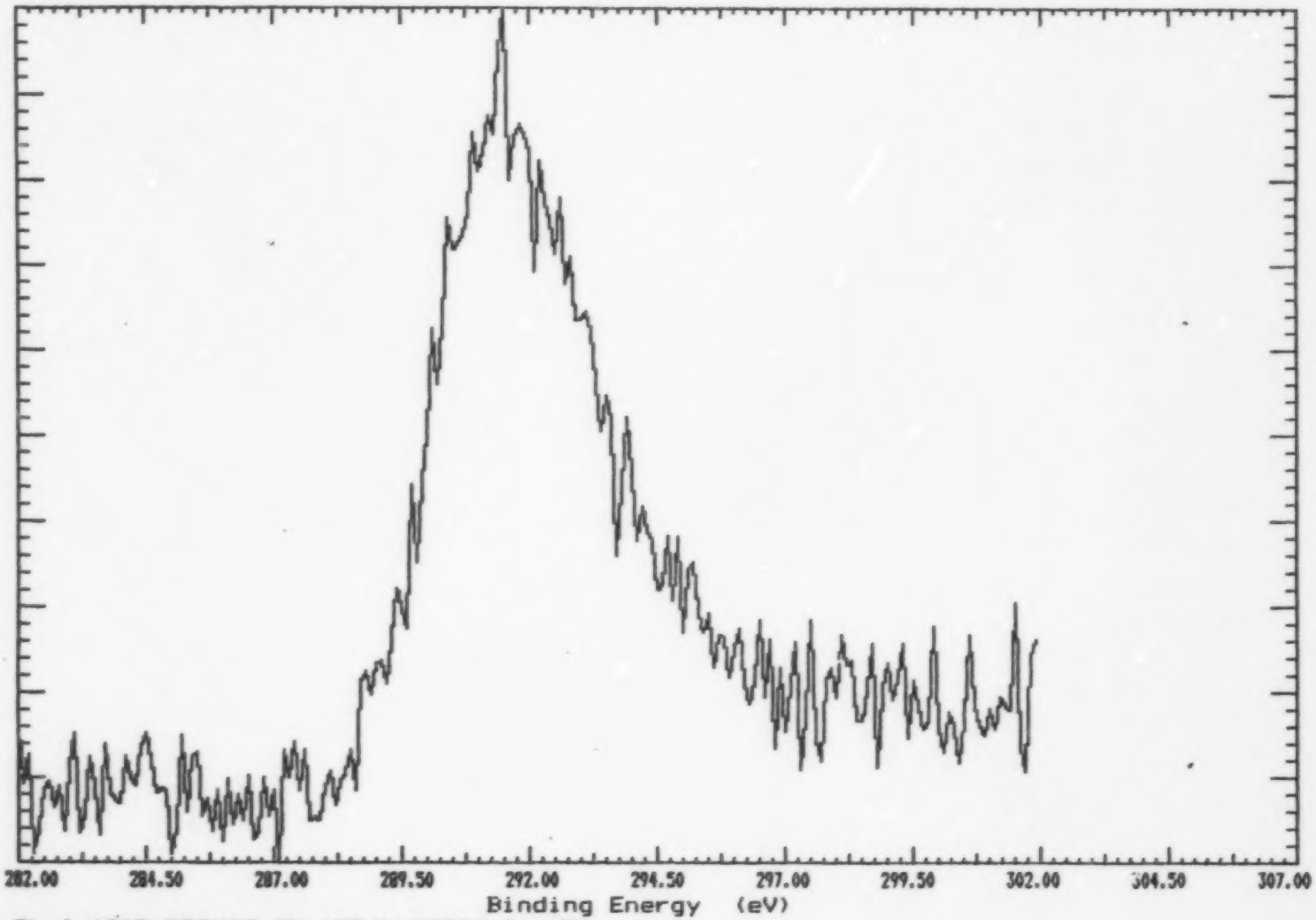
Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 47823
Step Size = 0.10 eV. 15 Scans of 200 channels at 50 ms per chan



GL-4-186B-REDUIT CM 15D/H MG300 C1 NR
OPT SI2P+MECA V=1.5*10-8
9H20 16 MAI 90

ASA49 Region 5 C1S VG SCIENTIFIC

Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 1010
Step Size = 0.10 eV. 31 Scans of 200 channels at 50 ms per chan

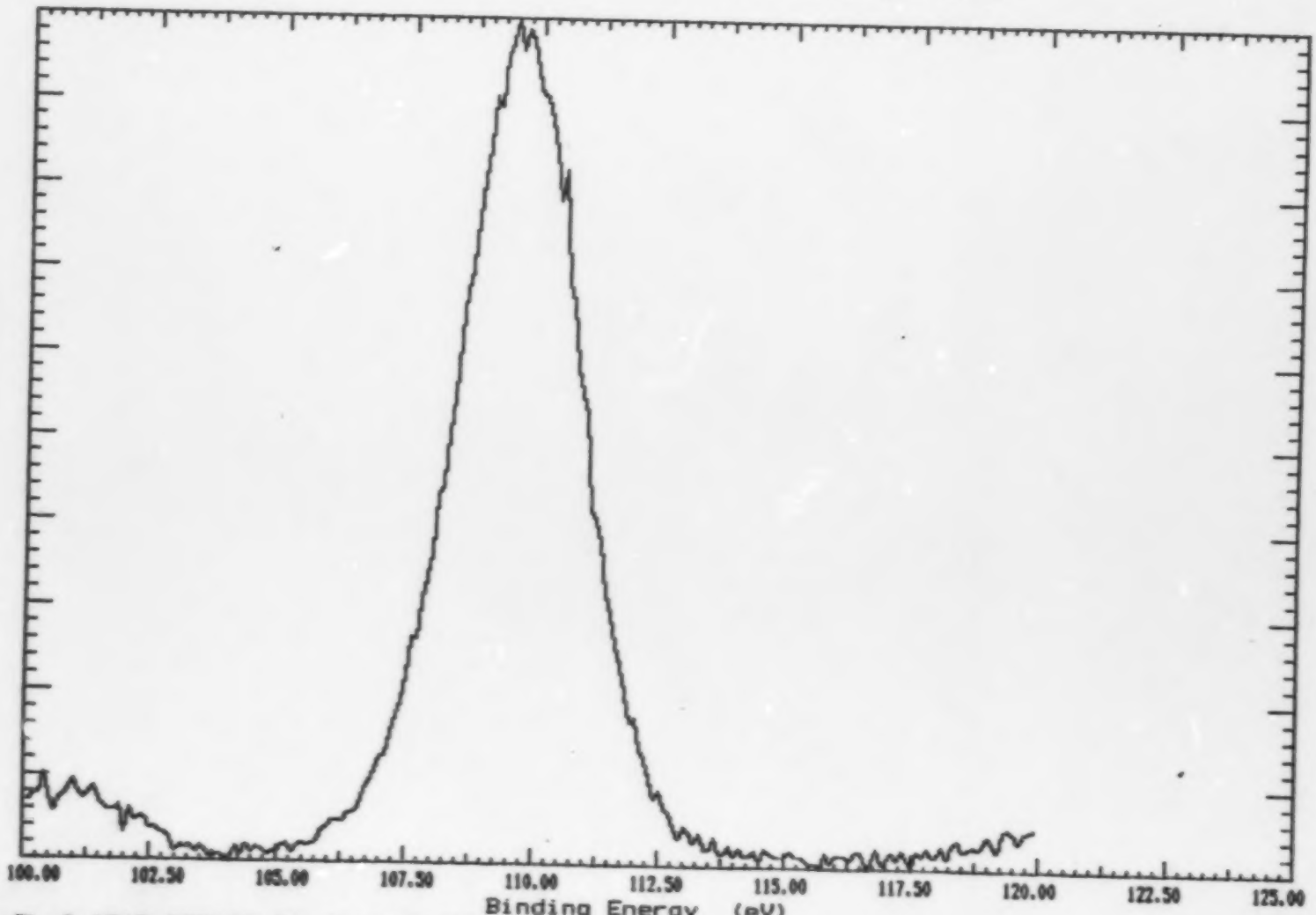


GL-4-186B-REDUIT CM 15D/H MG300 C1 NR
OPT SI2P+MECA V=1.5*10-8
9H20 16 MAI 90

ASA49 Region 6 SI2P

VG SCIENTIFIC

Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 9306
Step Size = 0.10 eV. 6 Scans of 200 channels at 50 ms per chan



GL-4-186B-REDUIT CM 15D/H MG300 C1 NR
OPT SI2P+MECA V=1.5*10-8
9H20 16 MAI 90

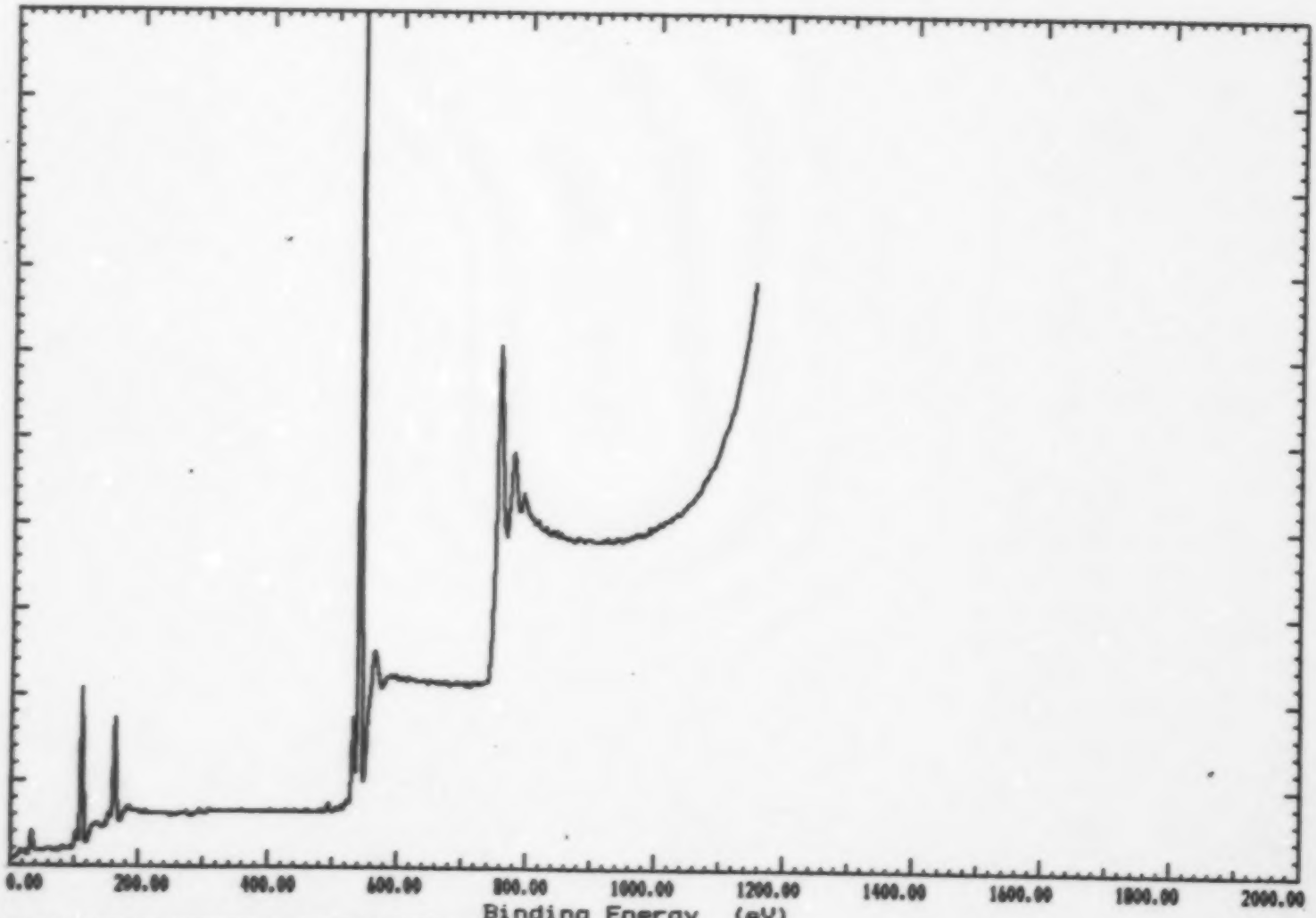
Pt/Silica

Sample No. 186B (1.10% Pt)

REDUCED AND GROUND

ASA48 Region 1 SURVEY VG SCIENTIFIC

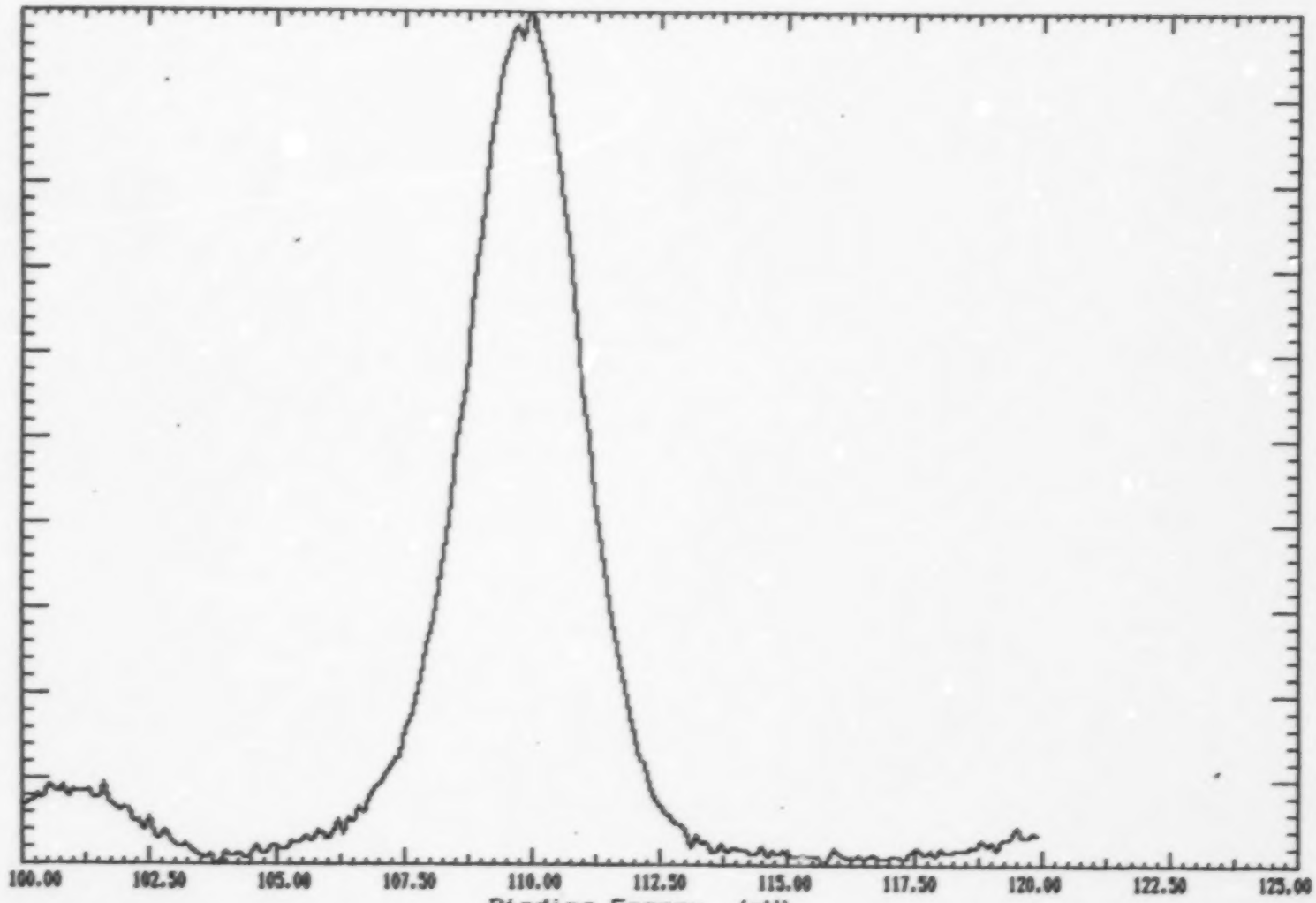
Mg XPS Analyser Energy = 50 eV Max Plotted Count Rate = 198727
Step Size = 1.00 eV. 10 Scans of 1150 channels at 50 ms per chan



GL-4-186-B-REDUIT+BROYE-5MINS CM 15D/H
M8300 NR C1
14 AVRIL 90 12H38

ASA48 Region 2 SI2P VG SCIENTIFIC

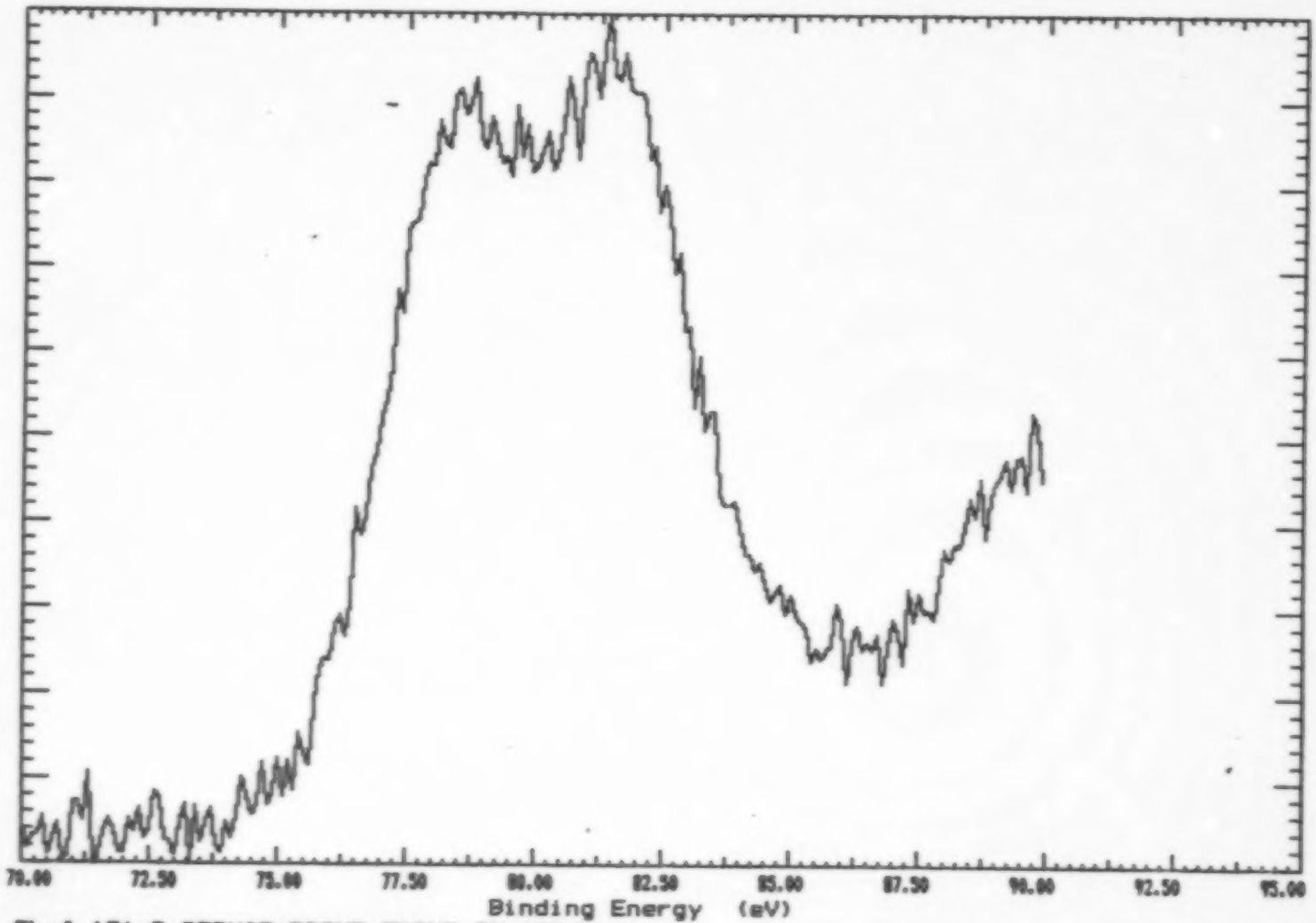
Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 9185
Step Size = 0.10 eV. 16 Scans of 200 channels at 50 ms per chan



GL-4-186-B-REDUIT+BROYE-5MINS CM 15D/H
MG300 NR C1
14 AVRIL 90 12H38

ASA48 Region 3 PT4F VG SCIENTIFIC

Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 189
Step Size = 0.10 eV. 872 Scans of 200 channels at 50 ms per chan

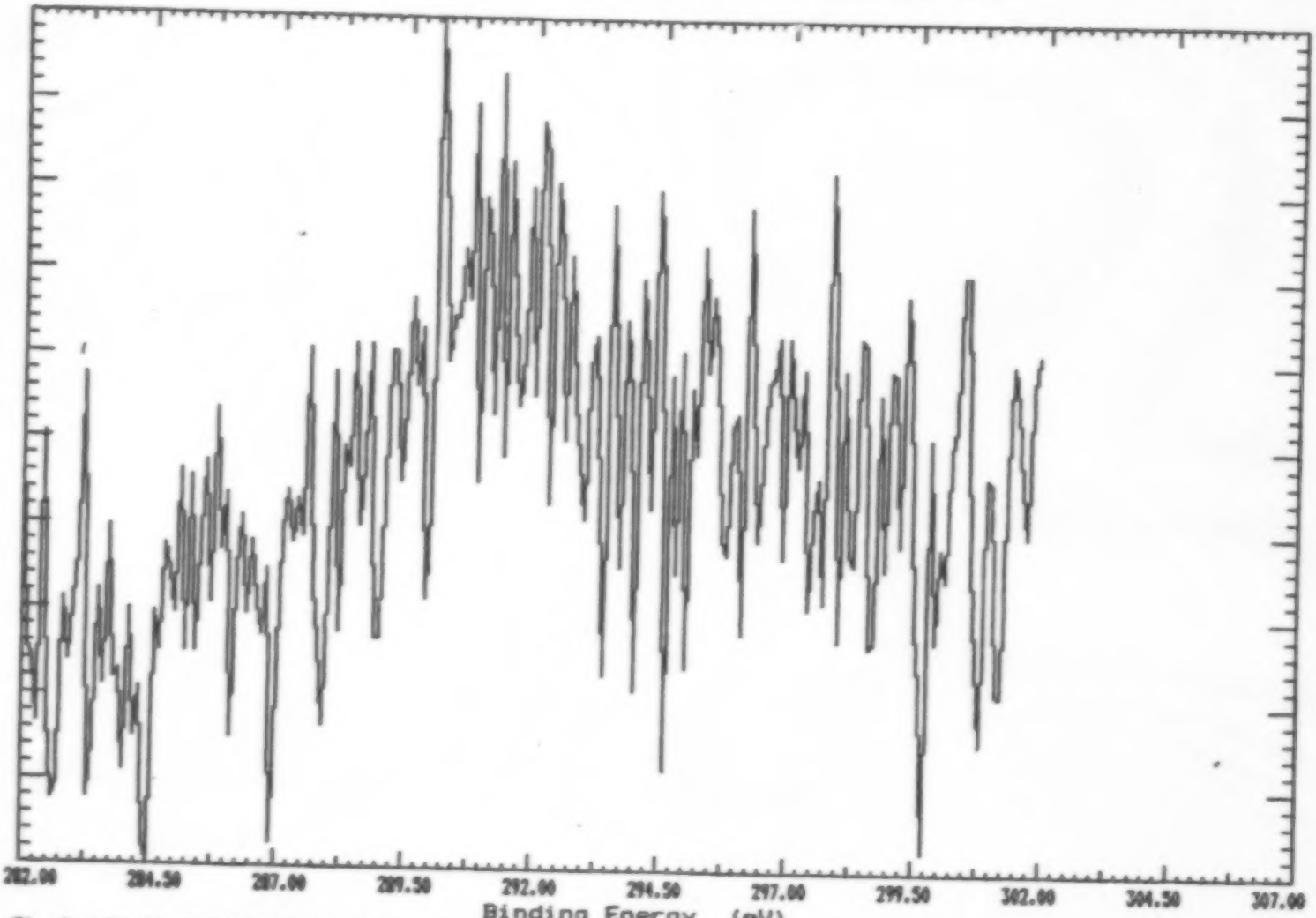


GL-4-186-B-REDUIT+BROYE-5MINS CM 15D/H
MG300 NR C1
14 AVRIL 90 12H38

ASA48 Region 5 C1S

VG SCIENTIFIC

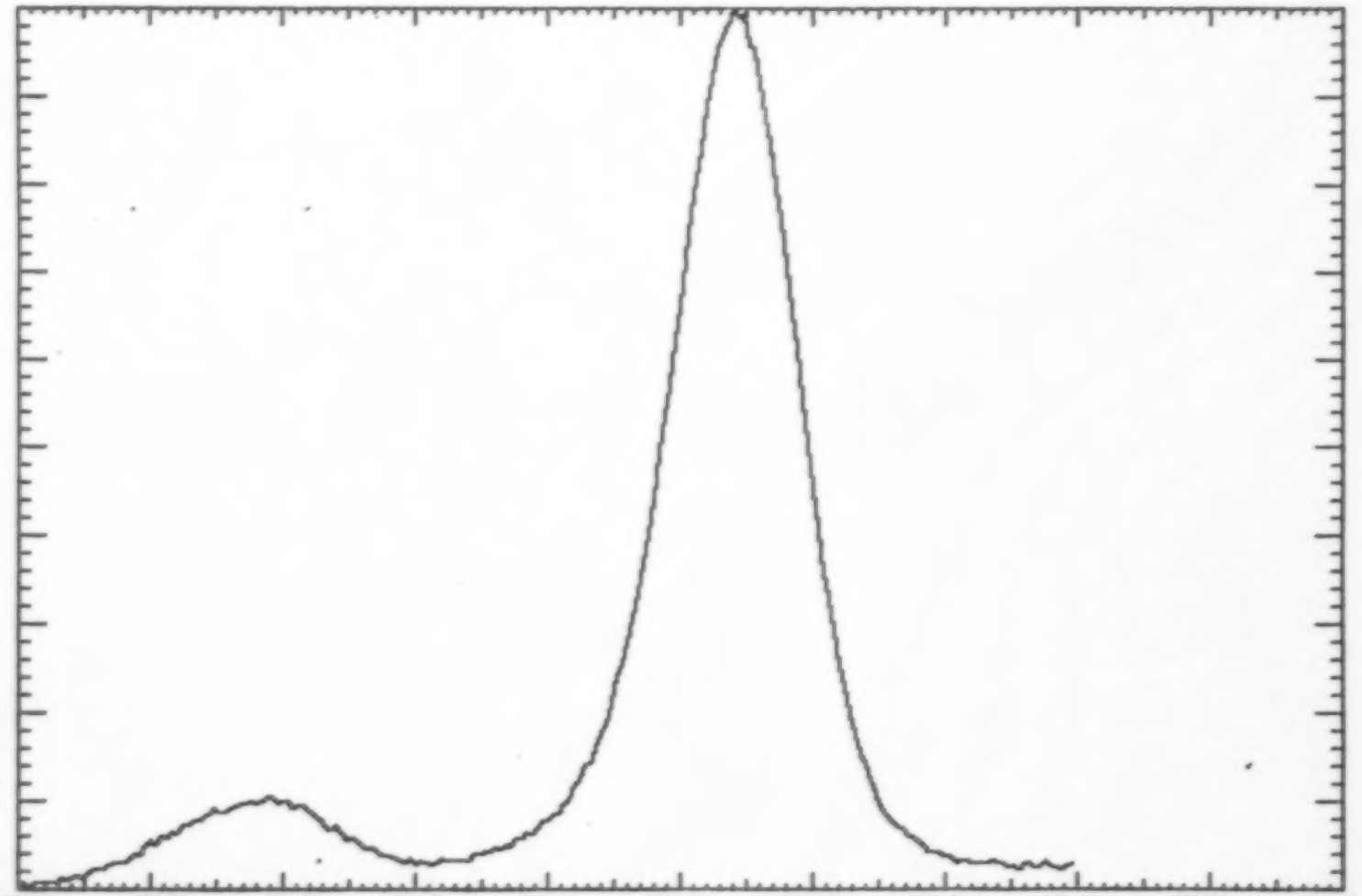
Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 497
Step Size = 0.10 eV. 10 Scans of 200 channels at 50 ms per chan



GL-4-186-B-REDUIT+BROYE-5MINS CM 15D/H
M8300 NR C1
14 AVRIL 90 12H38

ASA48 Region 4 O1S VG SCIENTIFIC

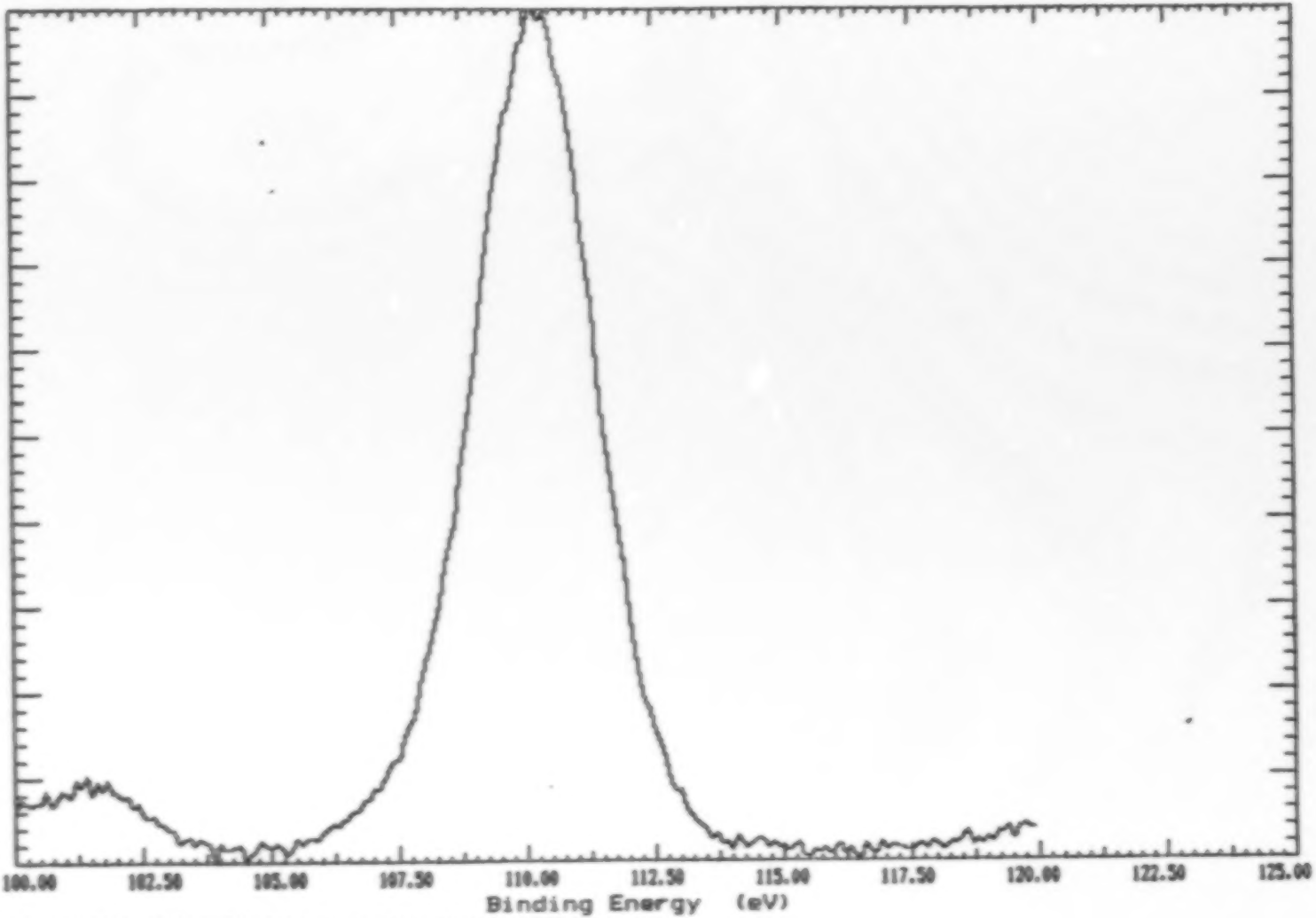
Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 48048
Step Size = 0.10 eV. 7 Scans of 200 channels at 50 ms per chan



GL-4-186-B-REDUIT+BROYE-5MINS CM 15D/H
MB300 NR C1
14 AVRIL 90 12H38

ASA48 Region 6 SI2P VG SCIENTIFIC

Mg XPS Analyser Energy = 20 eV Max Plotted Count Rate = 9177
Step Size = 0.10 eV. 10 Scans of 200 channels at 50 ms per chan



GL-4-186-B-REDUIT+BROYE-5MINS CM 15D/H
MG300 NR C1